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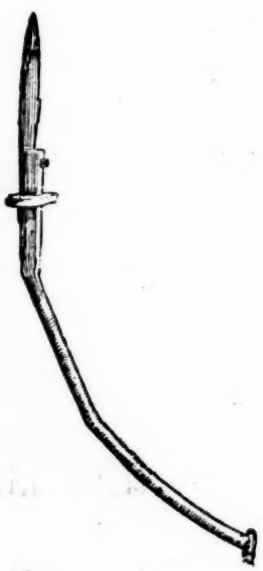

HAND PLOUGH USED BY THE YAMATO PIONEERS, WHO, BY SETTLING DOWN TO AGRICULTURAL PURSUITS, MADE POSSIBLE JAPAN'S FURTHER PROGRESS TOWARDS CIVILISATION.—Desire to possess the alluvial plains of Japan would seem to have been the incentive which drew the conquerors from the mainland of Asia. In stirring up his companions to accompany him upon an invading expedition, Jimmu, the legendary founder of the Empire, referred to the islands as "the land of fair rice-ears of the fertile reed-plain." The Yamato set themselves, with great energy, to reclaim land for rice cultivation, and some of their most important laws were directed against crimes which damaged the crops of rice. Rice was then, as now, the staple Japanese food, and the national beverage, saké, has been brewed from it from the earliest times. The cultivation of rice became the chief industry of the country and, since the preparation of the fields is an extremely arduous and complicated undertaking, much co-ordination of labour and rational organisation were involved. An ancient record gives a vivid insight into this activity in the year A.D. 6: "In this year the various provinces were commanded extensively to excavate ponds and channels to the number of eight hundred and more. Much attention was thus paid to husbandry. Therefore, the people enjoyed abundance and the Empire was at peace."

DATE: From about 500 B.C.

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The Huxley Lecture

ON

THE NATURE OF DISEASE.

DELIVERED AT THE UNIVERSITY OF BIRMINGHAM ON FEBRUARY 12TH,

BY

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HEALTH is the state of body and mind resulting from the successful adaptation of the living organism to external and internal factors. Dis-ease (want of ease), which is a departure from this condition of equilibrium or a want of harmony, has been often defined, but the definitions have not given universal satisfaction, and, as Mercier pointed out, it is noteworthy that the fundamental concepts of other callings, such as the law, engineering, finance, and war, are also hard to define, and that this process of specification, so to speak, is not arrived at until late in their history, though their practical efficiency has not been thereby affected. Definitions are a weariness of the flesh, but it may be well to quote one out of many—that formulated by the late J. G. Adami in 1910—as it contrasts with that of health and gives a good indication of the potential variability in the reaction we call disease; it runs as follows, "Disease is a process or succession of disturbances induced by any agent which disturbs the normal activities of the organism as a whole or of its constituent parts." Into another definition—that "disease is a failure of adaptation both to conditions without the organism and within" (W. A. White)—may perhaps be read two additional points: first, that the responsible cause may be inside the body, quite independent of any extraneous factor—for example, some congenital structural defect or a functional aberration, such as "the inborn errors of metabolism" or "chemical malformations" described by Archibald Garrod; and secondly, that in the process of adaptation not only may the normal reserve power of the living body be called upon, but that in comparatively slowly developing morbid changes, such as valvular disease of the heart and narrowing of canals such as the intestine, compensatory or adaptive processes, secondary to, but keeping pace (at any rate for a time) with the morbid change, may bring about such an adjustment that there is absolute freedom from symptoms. Thus destruction of one kidney may be compensated by hypertrophy of the other, and destruction of a portion of the liver by regeneration in the remainder. Symptoms, and disease in the sense to be explained directly, will only occur when these compensatory muscular and glandular hypertrophies fail; the hitherto latent morbid change then gives rise to functional disorder—that is, symptoms. This "margin of safety" or compensatory mechanism must be borne in mind as a difficulty in attaining the desired knowledge from the study, so much insisted upon by the late James Mackenzie, of the earliest departures from health; for by the time symptoms appear the morbid changes may be well established, and the manifestations might then be wrongly regarded as functional changes leading up to, and responsible for, the structural alterations. The mechanisms which compensate or restore damaged tissues or impaired functions, though for a varying time eminently successful, tend eventually to fail and then to become harmful; thus, according to Thoma's histo-mechanical conception of arterio-sclerosis, there is in the first place a local thickening of the inner coat of the artery to obviate a bulging at a spot where it would occur as the result of degeneration of the muscular middle coat; in course of time, however, the thickened area in the intima also degenerates, and what was a compensatory process becomes a morbid lesion. Further, the compensatory and defensive powers of the body may from the outset be ineffective—for example, when inflammation, defined as "the local attempt at repair of actual or referred injury" (Adami, 1896), rapidly produces suppuration; this idea is also expressed with regard to malignant disease in George Newman and J. A. Murray's dictum that "cancer may be considered as an aberration of the process of repair."

WHAT IS A DISEASE?

To consider now in rather more detail the question, What is a disease? Primitive man is superstitious and has always regarded disease and accident as due to the action of an offended or malicious deity, of the dead, or to the machinations of an enemy, and from the last belief was derived the idea of magic and witchcraft. Disease became regarded as a definite invasion of the body, as by demoniac possession or by a more material substance, which must be allowed an exit, as by the trephining in Neolithic times, or expelled, in order to obtain a cure. This notion that the cause of disease was the presence in the body of a foreign spirit or of some concrete substance with an extra-corporeal existence or phase obviously expresses, though in less scientific terms, the more modern knowledge of parasitic and bacterial infection, and so far may be regarded as prophetically rational. To discover the cause of the disease is the aim of diagnosis, and so keen is the appreciation of this important principle that there is still a tendency to regard the cause as synonymous with its results. A not unnatural outcome of the belief that disease was a disorder with an objective reality and due to some harmful substance in the patient's body was the materialization of diseases on the lines of botanical and zoological classifications, and to arrange them in genera and species after the successful plan initiated by Linnaeus. For this view Thomas Sydenham (1624–1689)—the British Hippocrates—was in part responsible. The rival nosologies of Felix Plater (1680), de Sauvages (1763), Vogel (1772), MacBride (1772), William Cullen (1785), Thomas Young (1813), John Mason Good (1817), and others elaborated this conception. Even now diseases are spoken of, though perhaps not seriously so visualized, as quite definite things; and it may be asked, What practical difference does it make if they are? A partial answer is that this would logically justify a rule-of-thumb practice of treating the disease rather than the sufferer. In this age of mass production and machine-made standardization, when, for example, motor cars are so alike that their disorders are of a stereotyped character, it is particularly important to insist on the obvious—namely, that human beings are made, not from one mould, but, individually, differing widely in their make-up and power of response. In illness we all desire to be treated as a special problem, not as one of a crowd of Robots, and accordingly trust our medical attendants not only for their technical knowledge but also for their ability of applying it to our particular needs. Every illness is the reaction of the body and mind of the patient to some factor which in its turn may be simple or complicated; the reactions of living matter are far from constant, and those of man become more complex as he moves from childhood and the simple life of the country to maturity and the whirlpools of modern civilization. Thus a startling or offensive announcement may leave one man untouched because he is deaf; another, phlegmatic or a philosopher, may receive it in silence; whereas in a third an emotional explosion follows. This variation in the response is most dramatically seen in idiosyncrasies, such as asthma and hay fever, as the result of inhalation of horse emanations or of pollens, or of abdominal and cutaneous symptoms, as the result of eating a few specks of parsley—an example of which in four generations of a family has just been brought to my notice. As in other matters, the problem, much discussed more than sixty years ago by Handfield Jones, Wilks, and W. Broadbent, whether to treat the disease by routine methods or the patient, is best solved by a compromise of judicious combination; for to treat the man without any reference to his malady—for example, if he is weak and his strength failing to be content with giving alcoholic or other stimulants—would be to regard one side only of the shield, prone to abuse and therefore very likely to do him definite harm.

But to continue consideration of the question what is meant by a disease. As long ago as 300 B.C. Erasistratus of the Alexandrian School of Medicine regarded it as a perversion of health, of the normal processes, and not a

condition contrary or foreign to biological nature; but this was forgotten. In modern times Claude Bernard (1854) spoke of disease as a physiological reaction in altered circumstances, and Clifford Allbutt, since 1871, followed by C. A. Mercier and F. G. Crookshank, pleaded for clear thinking and the recognition that a disease is not a definite thing, like a plant, but a mental abstraction or concept of the reactions of a living organism in certain circumstances. The groups of reactions form distinct pictures in the mind and are labelled by the name of a disease.

WHAT A DISEASE IS NOT.

Before going further it may clear the ground to consider what a disease is not; although a patient is ordinarily spoken of as, say, a case of cancer of the stomach, the malignant growth is not the disease; for disease is the reaction of the *living* body in the form of functional disorders correlated with a cause, whereas the cancerous stomach persists after death. Disease, like health, is inseparable from life, and its nature and causation would no doubt be differently interpreted by those holding the vitalistic and the mechanistic explanations of life.* Further, gross structural change may exist, and yet, as the result of compensatory changes, not cause any disturbance of function or symptoms of disease; conversely, changes such as can at present be recognized by the naked eye and the microscope may be absent in disease, although it is reasonable to imagine that some alterations occur, just as they must in other forms of vital activity. Symptoms, though the manifestations of the reaction and so part of a disease, do not of themselves constitute a definite disease, for they may be due to several causes rather than to one. In the case of infective diseases the exciting cause is invasion of the body by micro-organisms, the toxins of which set up changes in the body and so the resulting reaction called the disease. But the manifestations of the reaction may be regarded as of two kinds and as possibly due to two mechanisms: (1) as Boycott points out, the general symptoms, such as malaise, fever, and headache, common to most infections, are mainly due to substances liberated from the injured cells of the tissues; (2) the manifestations specially characteristic, and so diagnostic of certain infective agents, may be due more to specific bacterial toxins—for example, tetanus toxin, acting directly on the body tissues; or conceivably, as Sidney Martin argued years ago, the bacteria may produce a ferment which acts on the cells of the body so that they manufacture a specific poisonous substance. *Symptoms* have in the past been regarded as diseases—for example, dropsy—and even in our own day it has become recognized that some conditions, such as epilepsy, are collections of symptoms due to different factors; hence it is more correct to speak of the epilepsies rather than of epilepsy. To collections of symptoms occurring in conjunction sufficiently often to render their correlation recognized, but without any constant single underlying cause, the names "syndrome" and "symptom-complex" have been applied; the distinction between a syndrome and a disease, as the words are usually employed, is to be found in their etiology. A distinction has also been drawn between "syndrome," or a collection of symptoms with a functional or anatomical basis in the body, and the more modern word "symptom-complex,"† which implies a series of clinical signs and symptoms without any consideration of their relationship to a lesion or functional disorder of an organ, or a purely clinical coincidence (Cawadias). The word "symptom-complex," which has not escaped criticism as a barbaric mixture of the two classical languages, was, according to the *Oxford Dictionary*, first used in this country in 1897. As Cawadias points out, diseases were really symptom-complexes from Hippocratic times to the era of the anatomico-clinical school of Paris and of Claude Bernard and Johannes Müller (1801–58), when syndromes formed the basis of nosological classification. The term "clinical entity" is often used as synonymous with syndrome or symptom-complex to describe a definite collection of morbid manifestations which may be due to more than one distinct cause, and so is useful as long as the causation is uncertain. It thus avoids the definite statement that the group of symptoms is specific—namely, due to one factor—in other words, a disease in the proper sense of that word. Objection has been raised, especially by the late Sir Clifford Allbutt, to "clinical entity" as a descriptive title for a morbid condition, because it tends to perpetuate the material conception of something analogous to demoniac possession. But though this interpretation may be literally justified, it is not, rightly or wrongly, the meaning widely attached to the phrase.

To sum up, a disease is not a poison, a parasite, an ulcer, or a tumour, for these are causes; it is not a symptom, such as pain; but it is the mental picture of the manifest reactions of a living organism in response to harmful factors, whether derived from outside the body or arising internally.

TRANSITIONS BETWEEN HEALTH AND DISEASE.

As disease is primarily a physiological reaction to stimulating or depressing factors of a harmful character, and a mental concept or "construct" summarizing the events which then occur, it is clear that the line dividing health and the defensive powers of the body from disease may be very indefinite. Thus if the defensive powers are high the necessary reaction may be so short and slight as to be unaccompanied by any symptoms, and the individual is unconscious of the inward struggle that has taken place; this process is indeed constantly in action, and constitutes the resistance of a healthy individual. Truly we stand in jeopardy every hour. In other instances the reaction is more marked, but so rapidly successful that the disease is aborted; it is in cases in which the reaction is prolonged or eventually fails in its purpose that disease is more decidedly present. The leucocytosis in the early stage of infection may be compared with the reactive leucocytic increase during digestion due to absorption of food. Inflammation is an entirely useful and innocent process in the healing of an aseptic wound; indeed, it comes within the four corners of Frédéric's canon of physiology—namely, that "a living being is adjusted in such manner that each perturbing influence provokes to activity a compensating apparatus which brings about neutralization and repair of the damage." No one would call this a disease, but such an inflammatory reaction may gradually become a disease; thus local peritonitis producing adhesions by shutting off an infective focus is a protective or curative process; but general peritonitis is a reaction which so often fails that the causal infection is fatal. Here it may perhaps be mentioned that somewhat similar transitions are seen in diseases which vary in the number of the symptoms; when, instead of all the symptoms recognized as making up the mental concept, a few only are present, the disease is spoken of as larval or fruste; this may be a question of time, the reaction terminating before the initial manifestations are supplemented by those necessary to complete the recognized clinical picture.

With regard to the nature of the exact vital changes which occur in disease, apart from the comparatively gross alterations revealed by the microscope, there is much to learn. The recent advances of knowledge in connexion with the constitution of the atom and the electron hold out promises of possibilities the extent of which it is difficult to forecast. The application of physical chemistry to medicine is clearly of the greatest importance, but is so beset with difficulties that attempts to do so deserve sympathetic encouragement, even though they may not as yet carry conviction or be confirmed. Auguste Lumière explains health as due to the maintenance of the normal colloidal state, whereas disease is the result of its disturbance causing precipitation of protein from the colloids. When this occurs in the blood stream symptoms of acute disease follow, whereas chronic disease is due to precipita-

* Augusta Gaskell, who argues that life is due to the permeation by an immaterial system (derived from protons and electrons) of a material atomic system composed of chemical units, believes that the phenomena of cancer "constitute a striking proof" of her hypothesis.

† Mercier in 1917 poured scorn on "the terms syndrome, symptom-complex, and other monstrosities made in Germany" as "on a par with the exploit of the servant girl who calls a brilliant flash of lightning 'chronic' or the alienist who calls primary dementia 'dementia praecox.'" But the word (*συνδρομή*) was employed by the Empiric School of Alexandria, 300 B.C., to describe a series of symptoms (Crookshank, Cawadias), and was adopted by Galen.

tion in or about the cells of the tissues and organs, the different forms of chronic disease being determined by the organ or organs forming the site of this precipitation. McDonagh in his speculative essays, which are somewhat difficult to follow, brings in the electron; he describes protein particles in the blood, some of which are charged with electrons (negative), others with protons (positive), a condition of fair equilibrium meaning health. When a poison, bacterial or otherwise, comes on the scene, the protons are reinforced and the electrons are withdrawn from the protein particles; as a result the colloid state is affected and protein particles are deposited in any one or more of the four important viscera in the following order—kidneys, brain, lungs, and liver—thus causing disease.

Evolution of Diseases.

As diseases cannot, strictly speaking, be regarded as definite "things," it might seem illogical to speak of their evolution, and it has recently been stated that a serious attempt has not yet been made to apply the doctrine of evolution to the natural history of disease (Gill). No one, however, can fail to be interested in the changes that diseases have shown in the course of time, and in the forms that appear to be new and produced in certain circumstances; as long ago as 1890 an interesting work on *Evolution and Disease* by Sir John Bland-Sutton appeared. Some sort of an explanation of the existence of disease may perhaps be suggested, as a side issue after reading Professor A. E. Boycott's recent presidential address to the Section of Pathology of the Royal Society of Medicine; in it the capacity of self-repair is emphasized as one of the main characters of living organisms, but it is pointed out that this faculty is not, or only in a very slight degree, possessed by individual unicellular organisms. Now little or nothing, if the problematic nature of bacteriophage be excluded, is known about the diseases of unicellular organisms. Diseases and the power of self-repair have both become recognizable as the scale of animal life is traced upwards, and it is conceivable that they are closely allied forms of reaction to stimuli—the one (self-repair) successful, the other (diseases) more or less ineffective. *Diseases are not rigid types, but the more or less unsuccessful reactions to harmful factors, most commonly environmental;* it follows, therefore, that they show considerable variations in their manifestations, especially as the reaction depends on two variable factors—the characters of (1) the host or the "soil," and (2) the unfavourable environmental factor, the "seed."

Changes Associated with Civilization.

1. In the course of his progress from primitive to civilized life man has undergone many changes, and his bodily reactions to external factors, and therefore his diseases, must, like the forms of his virtues and vices, have altered in a corresponding degree, for consideration of his surroundings would suggest that the further man moves from his savage state the more complex will the character of his disorders become. How much a change of type of disease has occurred it is difficult accurately to estimate, for the slow advances of medical knowledge might easily make it appear that the evolution of disease has been more recent and extensive than is really true. There has in fact sometimes been a tendency to exaggerate the differences between the diseases of primitive savages, about which knowledge is deficient, and those of highly civilized inhabitants of large capitals. The ancient records of disease, often ambiguous about the existence of conditions now fully isolated, might easily convey the impression that diseases, such as small-pox and chicken-pox, scarlet fever and measles, became distinct from each other more recently than was actually the case. The comparatively new study of diseases which can be demonstrated in human and animal remains of ancient times, or palaeopathology, in the hands of Fouquet, M. A. Ruffer, Elliot Smith, and Wood Jones in Egypt, and of R. L. Moodie in America, has thrown much light on the antiquity of disease. Thus many affections of bones, arterio-sclerosis, rheumatoid arthritis (2900 B.C.), gout, dental caries and pyorrhoea, pneumonia, gall-stones and renal calculi, bilharziasis, and other still familiar ills that flesh is heir to, have been found in Egyptian mummies. But as regards acute fevers, which from their nature are prone to vary and are much more difficult to identify, help is wanting.

As both nations and their constituent individuals differ in their "constitution" or make-up, partly from heredity and partly as the result of the long-continued influence of their surroundings, their powers of resistance to disease must vary in a corresponding degree. Under certain conditions, such as those of war, famine, and epidemics—for example, of influenza—the vitality of a nation may be so much impaired that factors ordinarily comparatively harmless are enabled to act at an advantage, so that other diseases become frequent. Thus secondary epidemics or diseases which are not in evidence at other times may become prevalent. This sequence may have suggested to Sydenham his conception of "epidemic constitutions"—that is, that during the period of a dominant epidemic other diseases tend to share the characters of that infection. There are, indeed, close analogies between the factors modifying diseases in the course of time and those which appear to be responsible for the outbreaks of epidemics. The diminished resistance of a nation due to the depressing factors—material and mental—inherent in war, destitution, and unemployment, would probably allow micro-organisms previously of comparatively low pathogenic power to become active, and thus help to explain the increased frequency of streptococcal diseases, especially subacute and chronic bacterial endocarditis, and of pernicious anaemia since the great war.

Hereditary deficiency in resistance of the tissues, or of one particular tissue, of races or of individuals may lead to the incidence of particular diseases or to certain forms of those diseases; so that a nervous system weak from congenital defects will favour the attack of an infection, such as that of influenza, on that part of the body—a problem recently discussed by H. P. Newsholme. Hereditary diatheses or morbid proclivities in certain races of mankind lead to the occurrence of special diseases among them; this is best seen in the Jewish nation, which provides most of the cases of amaurotic family idiocy and thrombo-angiitis obliterans; it is further noteworthy that when these diseases do occur in Gentiles the manifestations are less severe and do not come on so early in life, thus suggesting that the inborn tendency is more powerful in the Hebrew cases. The highly nervous make-up of the Jewish race is a factor in disposing them to diseases of this system.

Influence of Environment.

2. Environment influences disease in many ways. It is so clear that climate is a most potent factor that the effects of heat and cold, humidity, absence of sunlight, need not be laboured: in hot countries the presence of special parasites, particularly protozoa, such as the malarial and amoebic organisms, and their carriers or vectors, such as mosquitos, are responsible for the important group of the tropical diseases. On the other hand, an environment, such as that of isolated races, free from some common infections, such as tuberculosis and measles, leaves the inhabitants a virgin soil; but should the infections be introduced, the incidence and mortality of the diseases tend to be very high. This is not so much due to want of innate racial resistance, as might perhaps be thought, but to the widespread absence of any previous individual infection and acquired immunity, or, as Krause persuasively argues, to concomitant changes in the manner of life, approaching those of the more artificial complexities of civilization which lead to physical degeneration of the pure stock of primitive peoples.

Environmental factors are more obviously powerful than heredity in the production of new forms of disease; this was shown, particularly during the great war, by occupational diseases in which the worker is exposed to some poisonous agent, such as trinitrotoluene or tetrachlorethane, in the manufacture of munitions and the varnishing of aeroplane wings with "dope." The branch of Industrial Medicine, already considerably advanced in America, especially in Boston, though originally suggested in this country by George Baker (1767), Thomas Percival (1796), and C. T. Thackrah (1831), and developed by Greenhow (1857), Thomas Oliver, Thomas Legge, and others, supplies many examples

of trade diseases. Another way in which environment brings about disease is by privation of some essential accessory food factor. Study of the "deficiency diseases" and the discovery of vitamins have opened out the path to the prevention of diseases such as rickets, beri-beri, scurvy, and dental caries; and recently vitamin E has been shown to be essential to fertility, its absence being responsible for sterility.

Among the environmental factors bacteria and protozoa are responsible for the majority of diseases. As they are at the base of the scale of living organisms it may be assumed that they are more prone than the higher animals and man to variation and mutation as the result of influences such as food and temperature; and that, at first purely saprophytic, some of them in course of time become parasitic and pathogenic for man. In its early days bacteriology discountenanced bacterial variation, and worked its way on the basis of fixity of type among the species of bacteria. It is now known that there is an enormous amount of potential variation in bacteria, and that a present-day bacteriologist "has not only to define the species of bacterium with which he is working, but the particular form or variant" (Arkwright). Modern work, recently summarized by Dible, shows the morphological, cultural, and serological differences of variants from the normal species—for example, in the Salmonella group (Andrewes; P. Bruce White)—and the probable influence of bacteriophage in promoting variation. The artificial conditions of laboratory cultivation tend to diminish their virulence, though occasionally a reverse action is observed; whereas the passage of pathogenic microbes through a series of animals of the same species enhances their virulence, thus supporting the view long ago expressed by W. H. Welch that bacteria on their part adapt themselves to their environment, just as the host develops a mechanism of defence against them. Clinically it may be noted that an increase in the severity, and not only in the incidence, of an infectious disease, such as diphtheria, may be noticed when a number of individuals are crowded together, though it is true that lowering of their resistance may play some part in this result.

Differences in the clinical manifestations of enteric (typhoid and paratyphoid) fever, dysentery, cerebro-spinal fever, and to some extent of pneumonia, have been proved by bacteriology to result from infection with different types of the typhoid-paratyphoid group, dysentery bacilli (Shiga and Flexner), meningococci, and pneumococci. This distinction of the type of the infective organism is, of course, of far more than academic interest, for it enables immunological treatment to be scientifically and successfully employed. Further evolution of bacterial variations, such as at some time in the past may have resulted in the formation of paratyphoid from typhoid bacilli, might lead to the production of new forms of disease; at the present time it may well be that there are many such bacterial divisions of disease as yet not separated from each other clinically and so still included under a single nosological label. Aberrant forms of infectious diseases would suggest the existence of variations in the causal agent; but here the possibility that mixed infections play a complicating part must be borne in mind. Just as diseases may die out, such as "the sweating sickness" in England in the fifteenth century, so may new diseases arise; syphilis, it seems safe to assume, did not exist in ancient Rome, as such a careful observer as Galen did not describe it or its nervous manifestations tabes dorsalis and general paralysis of the insane. But it may be noted that there is good evidence of its existence in Europe before the era of Columbus, and therefore that it was not introduced from the New World. Among animals hog cholera, unknown before the seventies of the last century, when it appeared in the United States of North America, is an example in support of the view that micro-organisms can and do undergo evolution from a harmless saprophytic condition to one of pathogenic activity.

In balancing the two factors—the soil and the seed—that determine the reactions known as disease, it is interesting to follow the swing of opinion's pendulum between their relative importance; seventy years ago the individual's constitution, diathesis, and temperament were regarded as the essential factors in the causation of illness. When bacteriology came on the scene and progressively revealed the true exciting causes of one infective disease after another, it seemed probable that every difficulty would be clearly solved, and the doctrine of constitution, the elements of which could not be seen under the microscope, faded away into the background as a misty conception, and for a time into almost complete oblivion. But the discoveries of this early stage of bacteriology naturally led to the careful investigation of the defensive powers of the living body against microbic attack; this study of immunology has brought up again the underlying importance of the constitutional factor in disease, which is now attracting investigators in disorders other than those directly due to infection.

THE SIGNIFICANCE OF DISEASE.

To most minds disease is included in the mystery of evil and considered an unmitigated calamity, and in the past has been regarded as part of a system of rewards and punishments. As the existence of a single unicellular organism normally terminates by division into two similar but rejuvenated individuals, these simple cells have been described as immortal, whereas in the higher grades of living creatures death has been regarded as an acquired character, associated with differentiation of the constituent cells and a resulting highly complex mechanism, and as an adaptation advantageous to the race (Weismann); this last—academic—conclusion has been criticized as probably the most perverse extension ever made of the theory of natural selection (Pearl). Death comes either naturally by a gradual exhaustion of the innate endurance and vigour, or unnaturally from accident or disease, which are therefore short cuts to death. From a biological point of view diseases have been regarded as beneficial inasmuch as they weed out the physical weaklings and so make for the survival of the fittest and the improvement of the race. Thus disease kills off the vicious, and, to take a rather special example, gonorrhoea, by sterilizing the prostitute, prevents the propagation of the degenerate; White, indeed, rather unkindly says, "In fact it is open to question whether, taking all things into consideration, the eugenist could do better." Still, many besides the degenerate fall victims, and disease, which has been at work and on its trial in this respect from or before the dawn of history, is too rough and unorganized a method to bring about the survival of the fittest. There will therefore be general agreement with the late Sir Clifford Allbutt's dictum a quarter of a century ago that public health will effect this object better and more permanently than public death. It is unnecessary to labour the evils brought by disease, but it may be well to glance at the other side of the shield and, though to some this may at first sight seem fanciful, to explore the possibility that disease may have good effects—a contention vigorously supported from a technical standpoint nearly a quarter of a century ago by the late Frederick Treves.

As good may come out of evil, it may be worth while to summarize briefly the conceivable ways in which disease, on account of associated conditions and of the opposing forces thus brought into play, may be regarded as exerting a beneficial effect. This problem may be reviewed from two aspects: (1) general and sociological, and (2) that of the individual.

Beneficial Effects of Disease in General.

It is not always easy or indeed possible to draw a hard-and-fast line between the normal or healthy on the one hand, and the abnormal, which may tend to produce disease or be in itself morbid, on the other hand. There may, in fact, be innocent as well as malignant abnormalities. There is a borderland between health, which Allbutt (1924) spoke of as an oscillation about an ideal axis, and disease, and it has been said that they are both relative terms and that there are various states of health and of disease (W. A. White).

The racial characteristics which, according to Keith, in part depend on the degree of activity of the endocrine

glands, may, when exaggerated, become definitely morbid and cause disability. Thus in this country the condition of Mongolian idiocy, first described in 1866 by Langdon Down, the causation of which, though uncertain, may possibly be due to a disturbance of the endocrine balance (Clark, indeed, ascribes it to foetal exophthalmic goitre), reproduces some of the facial characters of the Mongolian race. Pituitary activity, stated to be most obvious among the modern races of the Caucasian or European type, when greatly in excess causes pathological giantism and acromegaly. The occurrence of variations or, more strictly, of "sports" plays a part in the evolution of the race, and among these departures from the average the line of demarcation may be very thin between those exerting a beneficial influence and those definitely morbid. This is familiar in Dryden's lines:

> "Great wits are sure to madness near allied,
> And thin partitions do their bounds divide,"

and as regards this particular example it has been shown by the late Sir Frederick Mott and others, from a study of many pedigrees, how real this association is, and that environment and factors so obscure that in our ignorance they are called chance determine whether this inborn tendency will land the individual in the seats of the mighty, a prison, or a mental hospital.

The variations that are responsible for the evolution of the race are accompanied by others that facilitate disease, and though the latter cannot of themselves be regarded as useful, their occurrence is so commonly associated with that of those making for improvement that they may be regarded as a necessary accompaniment.

Genius and outstanding ability, though often and easily confused, are distinct; ability is, as Galton showed sixty years ago, largely hereditary, and may be associated with a family history of mental instability or defect. But, as compared with ability, genius is a finer and extreme development of the imagination and power of correlation, and may extend out of the abnormal into the pathological. The association of genius with disease of the mind and body has no doubt been exaggerated by the statement that a genius is hardly ever healthy; there are, however, abundant examples to support the contention of Lombroso and others that genius is often closely related not only with criminality and insanity but with other morbid conditions of the nervous system; this combination may occur in the same person, or the association may be shown by evidence of the neuropathic element in the genius's family tree. In the latter instance the genius or specially gifted individual comes of a neuropathic stock, though not himself necessarily degenerate. Enough has been said to show that genius and mental instability may be regarded as variations from the normal mentality. Their morbid manifestations may occur at different times in the same person, periods of definite insanity supervening and passing off; or insanity when it supervenes may close the career.

Geniuses, being usually highly strung, are certainly not immune to common ailments. While disease damages and eventually may destroy the body of the gifted individual, it must colour the mental attitude during the progress. While the usual effect of poisons is necessarily deleterious, some of them, especially in the highly sensitive and those with an idiosyncrasy, may in the early stages, when their irritant effect is predominant, exert a stimulating effect. Alcohol, opium, and morphine, as shown by not a few examples, have been the means by which a genius has been helped to deliver his inspired message. Similarly it has been thought that the toxins of disease may so act on the brain as to lead to the production of masterpieces instead of the more frequent nightmares and delirium. Many literary giants have naturally been tuberculous, and it is an obvious suggestion that their eminence may, in greater or less degree, have been due to, rather than in spite of, their infection. It has also been thought that syphilitic toxaemia played a part in the increased output of brilliant work shortly before its destructive triumph over men like Guy de Maupassant, Friedrich Nietzsche, Heinrich Heine, C. P. Baudelaire, and Paul Verlaine. The occurrence in Nietzsche's *Ecce Homo* of chapters headed "Why I am so clever" and "Why do I write such good books?" certainly suggests that he was already in the stage of exaltation of general paralysis of the insane.

It has been argued that, like alcohol and morphine, the bacterial poisons are responsible for striking ideas and conceptions by paralysing the mechanism normally blocking the external manifestations of an underlying creative power or personality (Jacobson). It is tempting to speculate on the correlation of various organic diseases with the characters of the literary and artistic products of the sufferers, and how far any special trait or tone of expression can be regarded as related to a particular disease. Did the hopeful spirit—the *spes phthisica*—account for the inspiration of some victims of pulmonary tuberculosis, such as Keats, Laurence Sterne, Emily Brontë, and Elizabeth Barrett Browning? There is some evidence from the *Vailima Letters* that when Robert Louis Stevenson's health improved his literary work deteriorated, and this has been explained by the absence of a toxaemic influence. In other instances, such as Francis Thompson (1859–1907), author of *The Hound of Heaven*, and Thomas De Quincey, tuberculosis of the lungs has been complicated by alcoholism or opium addiction; and then, as Jeannette Marks says, the question arises of "germs and genius" or "drugs and genius." How far did dyspepsia or, as G. M. Gould insisted, eye-strain guide Thomas Carlyle's mordant pen, and to what extent was Ménière's syndrome, from which Jonathan Swift probably suffered, responsible for his savage wit?

In some rather special instances an individual's disease has been the means of greatly benefiting his fellow sufferers, as it has made him monstrous kind in the practical sense of providing for their well-being and care; thus Sir Arthur Pearson's (1866–1921) loss of sight was the salvation of the blind in St. Dunstan's, where they were taught not only to earn their living but to bear their cross courageously and cheerfully. Medical men, themselves stricken, have worked for the relief of those with whom they can so fully sympathize: E. L. Trudeau (1848–1910) utilized his own long fight against tuberculosis to promote the open-air treatment of that disease in North America; and it has been said of him that perhaps nothing in the whole field of medicine in the past fifty years in America has done so much directly or indirectly to relieve suffering and extend the years of usefulness of so many people as the principle which Trudeau laid down at Saranac Lake (J. A. Myers). Another example is Mr. Clifford Beers, who, having suffered for years from a severe psychosis, founded the National Committee for Mental Hygiene in the United States.

In his pathetically charming *Confessio Medici* the late Stephen Paget (1855–1926), who suffered much and greatly loved his fellow men, wrote, "You cannot be a perfect doctor till you have been a patient; you cannot be a perfect surgeon till you have enjoyed" (and he proceeds to justify the somewhat unexpected verb) "in your own person some surgical experience." Many examples could be given of medical men who, as the result of their own sufferings, have been able to throw light on the nature, prevention, and cure or alleviation of their own particular cross.

Pain, one of the commonest manifestations of disease and useful as a warning of its presence, may, as James Hinton (1822–1875) the mystic argued, have uses that we know not of, possibly an unconscious though effective martyrdom for others. In his *Book of the Sorrowful* Hinton was mainly concerned with mental anguish, but with regard to physical pain it may also be wise to admit that there are more things than are dreamt of in our philosophy. Professor Emery Barnes reminds us that "from St. Paul downwards through the ages some of the greatest Saints of God have believed that their bodily sufferings or their bodily weakness has been of immense value in training the spirit."

Lastly, disease, which usually exerts an evil influence on the history of nations, may protect one of two hostile armies from the other by rendering advance and successful

invasion impracticable, or open the way to occupation of a new land—for example, the "providential" pestilence among the aborigines of Massachusetts Bay (1616–20) which enabled the first Pilgrim Fathers to take possession of the land in safety (Krause).

Beneficial Effects for the Individual.

A disease may do good by limiting its victim's activities in certain directions, such as social success or athletic prowess, and so leading him to concentrate his energy and powers on some specialized branch of intellectual work; thus by way of compensation he makes good, or achieves even greater success than he would have thought of attempting when unrestricted in his choice of a life's work. Invalidism necessarily restricts vicious self-indulgence and excess in satisfying the lusts of the flesh, and so may protect against the risk of other diseases to which the vigorous are, as a result of their rude health, more prone to expose themselves. This mode of protection is analogous to that probably responsible for the great longevity of women as compared with men.

There are other ways in which disease is a blessing, though perhaps in disguise; the onset of a trivial ailment or the detection of the early signs of disease without symptoms, such as are discovered at a routine examination for life assurance, may so impress the individual that he amends his manner of life, greatly to his future advantage. This warning mechanism was well expressed in the title of Sir William Osler's paper on "The advantages of a trace of albumin and a few tube casts in the urine of certain men above 50 years of age." Another example is the advantage of a raised blood pressure detected in its initial stages, provided steps are duly taken to prevent a further rise which would in time lead to generalized arterio-sclerosis and perhaps granular (arterio-sclerotic) kidneys. With the progress of medicine to its preventive ideal the logical utility of periodical medical examinations of the adult population will no doubt be recognized, and so lead to the detection of the early warnings and signs of impending disease among those as yet unconscious of anything amiss.

It is not an argument worth labouring, but, as certain conditions or reactions, such as emaciation and obesity, are due to their opposites, such as deficiency and excess, one disease may be the antidote to another, the two being, roughly speaking, incompatible. Thus there is a certain amount of antagonism between tuberculosis and gout, and tuberculosis and obesity. Moreover, as is well recognized, a chronic disease may sometimes appear to provide its own cure in this way; thus exophthalmic goitre may gradually pass into the opposite condition of myxoedema, and acromegaly (hyperpituitarism) may be succeeded by hypo-pituitarism.

An acute disease may cure a chronic affection; thus pneumonia may, for the time being at any rate, abolish the movements of chorea, or remove a skin disease of long standing; whooping-cough has long been thought to be relieved by vaccination, and has been known to be benefited by an attack of urticaria (Bury). The influence of an acute infection on a chronic one is probably analogous to the effect of protein shock therapy, in which the injection of a "foreign" protein into the blood stream sets up an acute reaction which in some way increases the protective mechanism against infection; for example, injection of peptone may be followed by much improvement in chronic arthritis. Just as many acute fevers leave behind them immunity for the rest of life, so a modified form of the disease or an abortive attack, which may escape notice at the time, protects the individual from a recurrence of the disease. This is well shown in vaccination against small-pox, and by the observation that people who have had the present mild form of small-pox, sometimes called alastrim and para-small-pox, do not contract the disease itself. Many forms of treatment act by stimulating or supplying the reaction and defensive powers of the patient necessary to repair damage or overcome infection; this was the rationale of Almroth Wright's vaccine therapy, and empirically the method has been employed for ages. The old practice of inserting a seton in the neck, thus creating a local wound or focus of infection, to cure some chronic condition, the similar production of sterile abscesses—for example, by turpentine—to counteract infections elsewhere, and counter-irritation, such as blistering, to relieve the pain in acute diseases, are examples of the attempt to neutralize the morbid reaction of one infection by another and artificially induced reaction.

THE RELATION OF THE NATURE OF DISEASE TO ITS PREVENTION.

Lastly, with regard to the practical bearing of the nature of disease: the ideal of Medicine is the prevention of disease, curative treatment being really a tacit admission of failure in this respect. For the prevention of disease knowledge of its causation and nature is obviously essential. The two great factors in the causation of disease are heredity and environment. Heredity of actual infective disease occurs in only a few instances; but structural and functional defects, especially in the vital resistance, of the body are common and important. Environmental influences cover a wide field, from the gross factors of deficient food, slum dwellings, and general misery, to the ultramicroscopic viruses of infective disease. The preventive measures and remedies, therefore, are correspondingly various. It is unnecessary to refer to the desirability of correcting the economic factors of poverty resulting in unhygienic surroundings, overcrowding, and deficient and bad food and drink; but a word may be said about the importance of universal health education as a means of preventing disease and so preserving the well-being of the nation. The recognition of the need for intellectual education is a duty recognized much earlier by the Government, for it is only since the war, when the Ministry of Health was established, that health education of the masses has really gone ahead. Preventive medicine is every man's business, for it is the active response to the instinct of self-preservation. The distinction, obvious though it be, may perhaps be emphasized between the practice of preventive medicine, in which each individual should be his or her own guardian, and the universal practice of curative medicine, which is inadvisable on account of the inherent dangers when carried out by laymen. It may well be that want of a clear dividing line between personal hygiene and domestic medicine has in the past made medical men hesitate about the advisability of encouraging general instruction in the laws of physiological righteousness, to use Sir Andrew Clark's phrase.

About the fundamental subject of an accurate knowledge of the causation of disease, on which preventive medicine is based, there is yet much to learn. As Sir George Newman has pointed out, it is extraordinary what contributions to medicine have in the past been made by scientific men who were not members of the medical profession. The debt of medicine to the more exact sciences mounts up much more rapidly and is much more in evidence now than ever before, and it is obvious that there should therefore be the closest possible association and correlation between the scientific workers in laboratories, where discoveries are made and tested, and the clinicians in the wards of hospitals, where the practical application of new knowledge may lead to fresh advances in the prevention as well as the cure of disease. With the specialization inevitable from the enormous advance of knowledge there is an unfortunate tendency for these two classes of workers to plough their own furrows; guidance from men of pure science is of the greatest value in the discovery of the causes and nature of disease; for physics and chemistry, biochemistry, physiology, and pathology touch, overlap, and interlace with each other, and human biology is a good synonym for medicine. To facilitate this desired association much can be done by the plan of having the various science laboratories in the same building or all concentrated together; the physiological, biochemical, anatomical, and pathological departments close to and communicating with the hospital, just as the physics department is or should be a near neighbour of the engineering laboratory. The University should have control of the hospital as well as of the laboratories—a conception not perhaps yet widely accepted.

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VOLVULUS OF THE INTESTINE.

BY

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VOLVULUS rotation or twist may affect any of the movable viscera, and this accident is especially likely to happen to those organs or parts which are pendulous or more or less pedunculated, such as the pelvic colon, caecum, spleen, retained testis, ovarian cyst, or subperitoneal fibroid. The weight of a tumour, a distended Meckel's diverticulum, or a mesenteric cyst, or the drag of a peritoneal adhesion may start or complete the twist. I have seen several instances of volvulus of the spleen of the omentum, of the gall-bladder causing sloughing, and one instance of rotation of a loose liver causing jaundice by kinking of the bile ducts. Even the stomach is not immune from volvulus; being fixed as it is at the cardia and pylorus, the dilated or distended intervening portion may twist, especially when it is dragged upon by a large spleen or escapes into a diaphragmatic hernia; serious and acute pyloric obstruction has arisen in these ways, and has been relieved by replacement and removing the cause.

In this article I am chiefly concerned with volvulus of the intestine causing intestinal obstruction. Such a volvulus may be acute, chronic, or recurrent; it may be simple, affecting only one loop of bowel, or it may be compound, as when a loop of small intestine twists round a volvulus of the pelvic colon.[1] Any part, or the whole, of the small intestine[2] except the duodenum, and any part, or even the whole, of the large intestine except the rectum, may twist (Finney recorded a volvulus of the whole of the colon between the ileo-caecal valve and the pelvic colon[3]), but the common sites of the volvulus are the pelvic (sigmoid) colon and the caecum. Congenital imperfections, especially elongation of the mesentery, such as a long meso-sigmoid with a narrow base, or a pendulous and freely movable caecum and ascending colon, are usually determining factors. Visceroptosis with distension and elongation of the pelvic colon associated with chronic constipation, and repeated prolapse of the rectum, also contribute to the causation of volvulus. Injuries, violent twisting movements, and operations may displace and twist the bowels—for instance, the pelvic colon was raised and displaced to the right during an operation for ruptured left extrauterine foetation, the loop was not replaced, and fatal volvulus resulted. The consequences of volvulus are often grave, for obstruction of the vessels may lead to swelling, haemorrhage or infarction, inflammation, and necrosis or gangrene of the twisted loop, thus adding to the dangers of intestinal obstruction. Volvulus of the appendix and of Meckel's diverticulum* often causes severe attacks of inflammation, or gangrene of the twisted part, with peritonitis and ileus.

SYMPTOMS OF ACUTE VOLVULUS.

The symptoms and signs of acute volvulus, whether of the large or small intestine, are those of acute intestinal obstruction, such as severe spasmodic abdominal pain, characteristic vomiting, complete constipation and collapse, with slow weak pulse and subnormal temperature. Here it is only necessary to point out the special features of volvulus. The history of previous attacks is very suggestive of volvulus, the more acute the case the more severe the pain, and, above all, the more rapid and extreme the distension of the abdomen the more is volvulus to be suspected. Visible peristalsis, when observed, in very large coils is almost characteristic of volvulus of the large intestine, but it is not by any means constant. Volvulus is commoner in the large than in the small intestine, and is especially common in the pelvic colon. With volvulus of the small intestine the coils are naturally smaller and the distension less phenomenal, but the severity of the symptoms is usually extreme, and the march of events to a fatal issue is more rapid unless relief is brought by early operation.

SYMPTOMS OF CHRONIC AND RECURRENT VOLVULUS.

These are chiefly those of chronic intestinal obstruction—namely, recurrent attacks of colic with distension, indigestion, and chronic constipation perhaps alternating with diarrhoea, but without blood in the stools. Fever is usually absent. Sometimes the bowels do not act without the aid of large doses of violent purgatives or enemata or both. Opaque meals, and especially a barium enema, may reveal great dilatation and stagnation in the affected loop. An opaque meal is more valuable with chronic incomplete volvulus of the caecum, for an opaque enema may not reach or enter the obstructed loop as the obstruction is more complete at the distal than at the proximal end of the loop. An opaque enema is usually more valuable in the diagnosis of volvulus of the pelvic colon.

DIAGNOSIS OF ACUTE VOLVULUS.

From other kinds of intestinal obstruction volvulus is to be distinguished chiefly by the very acute onset, rapid progress of the symptoms, and particularly by the unusual amount of tympanitic distension of the abdomen, which develops in a very short time. As already mentioned, visible peristalsis in very large coils of intestine is suggestive of volvulus of the large intestine; the twisted dilated caecum is often to be seen lying in the left iliac fossa, and the twisted and distended pelvic colon in the right hypochondrium. There is often a history of previous attacks of colic without fever; the absence of fever tends to exclude recurrent appendicitis, cholecystitis, and diverticulitis. Volvulus of the large intestine is naturally most likely to be mistaken for the far commoner cause of obstruction of the colon—namely, carcinoma of the colon, which causes considerable, but less rapid, gaseous distension. With carcinoma there may be a history of chronic constipation alternating with diarrhoea, with blood and mucus in the stools. Often the diagnosis is not certain until the abdomen is opened, as it should be without delay.

DIAGNOSIS OF CHRONIC VOLVULUS.

Here there is more time and opportunity for investigation. Chronic and recurrent volvulus is most commonly mistaken for chronic constipation, but careful and repeated radiographic examinations may reveal the dilated coils so

* An interesting and successful case of volvulus of a greatly distended Meckel's diverticulum is recorded in *The Operations of Surgery*, Rowlands and Turner, seventh edition, ii, p. 344.

characteristic of volvulus. Volvulus of the caecum is apt to be mistaken for recurrent appendicitis or appendical colic, but with it there is no fever during the attacks. The dilatation of the caecum, its free mobility and pendulous appearance, should correct the mistake once the abdomen has been opened. In one of my cases of chronic volvulus of the pelvic colon the dilated loop had pressed the stomach into an hour-glass shape; moreover, the gastric symptoms were so severe that the diagnosis made before the operation was hour-glass contraction with duodenal ulcer.

TREATMENT OF ACUTE VOLVULUS.

1. *Acute Intestinal Obstruction due to Volvulus.*

Here the main objects are (*a*) to save life by relieving the acute intestinal obstruction, and (*b*) if possible to prevent recurrence. The mortality of acute volvulus is about 50 per cent., and is so high chiefly from delay and attempting too much at the emergency operation. A long right paramedian incision is made in the lower abdomen to give a good view and plenty of room to deal with the distended bowel. It is often necessary to deliver the affected loop, but this may be impossible without first letting out gas with a needle, or trocar and cannula; sometimes it is better to incise the loop over a sterilized basin, and to make use of this incision in performing a colostomy or caecostomy. The twist is undone and valvular drainage of the loop established with a soft rubber tube of one-third of an inch internal diameter, which passes through a separate stab wound in the parietes, so that the exploratory wound may heal by primary union. The drainage may so reduce the size of the affected loop of bowel and fix it to the parietes that recurrence of rotation may not take place, and the need of a secondary and perhaps severe operation is thus avoided (Cases I and II). In some cases of volvulus of the pelvic colon it is enough to pass up a rectal tube, guided into the distended loop by a hand in the pelvis. The tube is kept in and sewn to the anus. When the bowel is gangrenous it must be resected, and sometimes the channel can be immediately re-established—for instance, the gangrenous caecum is excised and the ileum, about six inches above the ileo-caecal valve, is joined to the transverse colon. As a rule radical operations have to be deferred until the immediate peril has passed.

2. *Chronic Volvulus of the Intestine.*

This condition may be treated by: (1) excision of the twisted loop; (2) short circuit; (3) fixation of the loop, with or without temporary drainage. As a rule excision is the best method because it makes recurrence impossible, and prevents the troublesome accumulation of faeces and gas in the dilated loop; but short circuit is sufficient and less dangerous in selected cases. Examples of these methods are given below (Cases III and IV).

Fixation of the loop of bowel by suture to the parietes is difficult owing to the length and position of the loop. How can the long large loop of pelvic colon with a narrow base or pedicle be fixed without fear of recurrence or the making of pockets, apertures, or bands, for the development of other forms of intestinal obstruction later on? Recurrence took place in two of my cases of volvulus of the pelvic colon.[4] In both of these the loop had been fixed to the abdominal wall. Shortening the mesentery after the method of Senn has been successfully used in some cases. The mesentery is "folded" upon itself in a direction parallel to the bowel, and the apex of the fold is sewn to the root of the mesentery without interfering with the blood supply of the bowel. It is evident that this method is not always applicable to such parts as the abnormal pelvic colon, where the loop is long and the base is short. For volvulus of the ileo-caecal region I believe that either excision or short-circuiting is better than fixation, which may cause future trouble by adhesions or kinking.

The following cases may serve to illustrate some of the difficulties of the diagnosis and treatment of volvulus.

CASE I.—*Volvulus of the Caecum: Acute Intestinal Obstruction: Caecostomy: Recovery.*

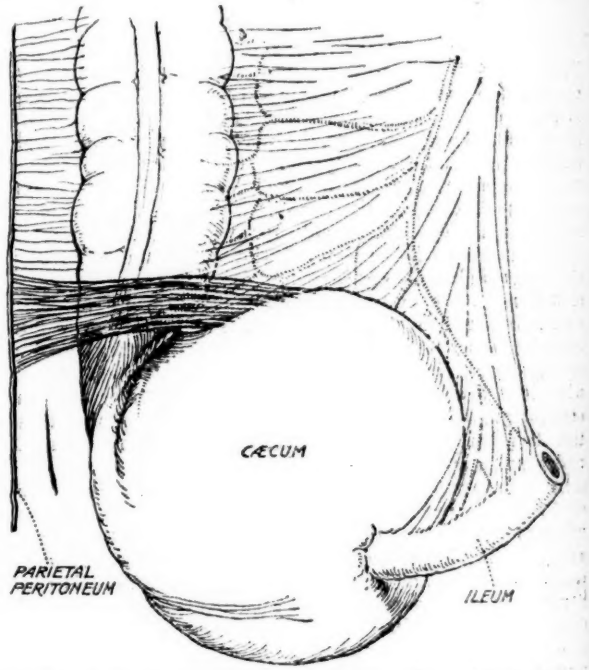
A married woman, aged 45, first came to me in January, 1922. She had suffered from chronic indigestion for years; this had been attributed to visceroptosis, for which she had worn a Curtis belt. She is said also to have suffered from left hydronephrosis. X-ray examination for stone had been negative. She was very anaemic, and was tender over the appendix. In February, 1922, the abdomen was explored through a right paramedian incision. The appendix was very long, kinked, and chronically inflamed, and was removed. There was an old, but still active, ulcer on the anterior wall of the duodenum, stenosing the latter. There were so many adhesions that a local operation was not considered safe, therefore a posterior gastro-jejunostomy was performed. There were no gall-stones; the caecum was dilated. She was well for over five years.

On May 15th, 1927, at 10 p.m., she was seized with very severe abdominal pain, and spent the night walking about the room in great distress. Dr. W. was called in on May 16th. Enemata failed to act, and no flatus was passed. Visible peristalsis was noticed, and an immediate operation advised. This was carried out the same day at 6 p.m. A right low paramedian incision was made, the rectus being displaced outwards, displaying a very large distended coil of large intestine, which was found in the lower half of the abdomen; this was cautiously delivered, and found to be the caecum in volvulus, which was very large, and had made two complete clockwise rotations to the left; this had completely obstructed the ascending colon, but not the end of the ileum. The volvulus was uncoiled, and the contents of the caecum were, with some difficulty, pushed on into the transverse colon; but to prevent paralytic distension, and especially to avoid recurrence of the volvulus, a valvular caecostomy was performed. A long rubber tube, with an internal diameter of one-third of an inch, was passed through the abdominal wall at a stab wound one inch internal of the right anterior superior spine. The end of the tube was open, and a side hole was made close to its extremity, which was introduced into the caecum through the anterior muscular band, after a large pouch of caecum had been emptied and clamped; it was fastened to the sides of the incision in the caecum by a catgut stitch, then the small incision containing the tube was inverted by three purse-string sutures of fine catgut, thus making an ink-bottle or continent caecostomy. The caecum was next drawn into contact with the parietal peritoneum, and the tube was tied to a stitch in the skin. The paramedian incision was then completely closed in layers.

It is interesting that in this case it required two complete rotations to produce obstruction of the ascending colon and caecum; there was no band extending from the right flank to the front of the ascending colon to facilitate obstruction. The patient did well, and was seen in perfect health in September, 1928.

CASE II.—*Chronic Volvulus of the Caecum and Chronic Intestinal Obstruction: Anastomosis of the Caecum to the Transverse Colon.*

Miss X had suffered since childhood from very severe constipation with attacks of abdominal pain without fever. Radiographic examination suggested adhesions in the right iliac region, and



Volvulus of the caecum. The twist is more often clockwise to the left.

it was thought that she had chronic appendicitis, and required a laparotomy. The operation was done on April 8th, 1928. The appendix was oedematous and white; there were no adhesions about it or the intestines, but the caecum was very greatly dilated and lying low in the pelvis; it was freely movable and pendulous with the lower end of the ileum, and clearly capable of twisting upon the ascending colon, the lower part of which was movable. There was a white mark on the ascending colon indicating the site of the former twistings, just below adhesions to the right flank. The appendix was removed, and an anastomosis was made between the front of the lower end of the caecum and the descending part

of the transverse colon, the anastomosis being about three inches in length. The patient has done very well since the operation, the constipation and pain being apparently cured.

CASE III.—*Recurrence of Acute Volvulus of the Pelvic Colon in Spite of Colostomy.*

A lady, aged 61, a patient of Dr. B., in 1906 was operated upon for acute intestinal obstruction. After making an incision in the left linea semilunaris, the surgeon accidentally opened a greatly distended colon. It made a noise like a bursting tyre, and discharged a large amount of gas and faeces. He tied in a Paul's tube at once, and the patient gradually recovered. Malignant stricture of the sigmoid was diagnosed, and a bad prognosis was given; but after some weeks the bowels began to operate naturally and there was a good deal of difficulty in keeping the colostomy open. After six months the fistula was allowed to close, and to everybody's surprise the patient made a complete recovery, except for some weakness in the abdominal wall at the site of the colostomy. The bowels acted regularly with the aid of an occasional aperient. She had no more colic, and she never passed any blood or mucus. The abdomen, however, has ever since, and for some time previously, been somewhat distended. On February 27th, 1912, it became more distended, and the patient had a good deal of pain in the lower part of the abdomen, especially on the left side. Since then the swelling has rapidly increased. All purgatives have failed to act, and enemata have also been ineffectual. A rectal tube could not be passed more than six inches. No growth could be felt. An enormously distended coil of intestine could be seen extending along the course of the transverse colon, above the umbilicus and down to the left flank.

I saw her on March 1st, at 8 p.m. In view of the past history and the presence of the greatly distended coil a diagnosis of volvulus of the sigmoid was made, and an operation was performed the same evening. A very large coil of bowel was found occupying the pelvis, the left flank, and also the middle part of the abdomen, extending almost to the liver. A hand was passed into the pelvis and a rotation of the sigmoid loop was made out. At the attachment of its mesentery radiating ridges were felt. The incision was enlarged and the loop was gradually delivered. The coil was longer and larger than a coat sleeve. The twist could not be completely reduced owing to the great distension and extensive adhesions at the site of the colostomy. A trocar was thrust into the middle of the distended bowel, and a very large amount of gas at once escaped through the attached rubber tube; a little faeces also came away. The opening was closed with a purse-string suture of thread as the cannula was withdrawn. An attempt was made to sever the attached piece of colon from the sac of the hernia. In doing this, however, a small opening was made into the bowel. It was therefore decided to tie a glass tube into this opening for temporary drainage only. A loop of bowel above this was placed vertically behind the abdominal incision, which was closed with mass salmon-gut sutures not perforating the peritoneum, so that the bowel might get extensively attached to the parietes to prevent further rotation. The tube was removed a few days later and the patient made a good recovery, and was well three years later.

It is certain that the volvulus was not reduced at the first operation, but the drainage and shrinkage of the distended loop served to re-establish the channel after some weeks. Later on distension increased, and history repeated itself.

CASE IV.—*Chronic Recurrent Volvulus of the Pelvic Colon: Resection: Recovery.*

A boy, aged 14, was in 1918 admitted to Guy's Hospital under my care for repeated attacks of pain in the left loin. In 1913 he had a definite and severe attack of appendicitis, with fever, pain, and local tenderness in the right iliac fossa; he was in bed for three weeks, and an operation in the quiet period was advised. For two and a half years before admission the boy had suffered from severe attacks of pain in the left loin, relieved by rest in bed, hot bottles, and a dose of castor oil; there was neither vomiting nor any abnormality of the urine or urination. Left renal or ureteral calculus was suspected, but radiography and urinalysis were negative. The attacks recurred more frequently and became more severe during the latter part of 1919. In February, 1920, the boy was readmitted for further investigation, but no evidence could be obtained of any disease or obstruction of the left kidney. Radiographic examination of the gastro-intestinal tract showed no abnormality beyond some delay in the transverse colon, which was prolapsed and dilated. The abdomen was explored and a chronically inflamed appendix was removed. All the large intestine was dilated, especially the caecum, and transverse and pelvic colons; the latter was elongated and hypertrophied, but not obstructed, therefore it was not thought wise to resect it without consulting the mother and unless the attack recurred.

The attacks, however, increased in frequency and severity; therefore, at the end of April, 1920, the abdomen was reopened, and the pendulous and now twisted loop of pelvic colon was excised, an end-to-end union being made. The patient made a good recovery and has been able to carry on his work as an engineer ever since, but he still gets pain in the left loin if he allows his bowels to get constipated; this happens when he is rowing and racing upon the Thames.

PROGNOSIS.

The mortality of volvulus is very high. Thus in Corner and Sargent's[5] collection of 57 cases, 19 recovered and 21 died after operation; the remainder died without operation. In the records of Guy's Hospital for the five years 1920–24 Mr. B. L. Laver found 11 cases of volvulus, 6 of the small and 5 of the large intestine, with 5 deaths—a mortality of 45 per cent. in 74 cases. Quick and efficient work and drainage of the distended loop and of the intestines above the obstruction, and not attempting too much in the critical acute stage, are very important elements in the success of the operation.

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THE USE OF ULTRA-VIOLET RAYS IN DISEASES OF THE NOSE AND THROAT.*

BY

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THE biological action of light is primarily due to photochemical reaction. Waves of light are absorbed by living cells and produce photo-biochemical reactions which influence the whole organism. All living cells are sensitive to the ultra-violet rays from 3,100 to 2,500 A.U.; furthermore, the living cells can be made sensitive to the infra-red, visible, and long ultra-violet rays by the addition of certain dyes and chemical substances called "light sensitizers." When a normal tissue, such as the skin, is exposed to a source of light emitting numerous waves of light, each group of waves penetrates through the depths of the tissue to varying degrees and has a different biological action. The near infra-red, visible red, and yellow rays penetrate beyond the blood vessels in the skin and heat the tissues; as a result vaso-dilatation and hyperaemia are produced. The green, blue, violet, and long ultra-violet rays penetrate to a smaller extent, and are absorbed by the haemoglobin pigments of the cutaneous blood. The long ultra-violet rays excite a greenish fluorescence of the skin, and are selective in their behaviour to the light sensitizers. The ultra-violet rays from 3,100 to 2,500 A.U. penetrate to the superficial layers of the living epidermal cells. They excite a green fluorescent light in the horny layers of the skin, and, having a rapid lethal action on the living cells, produce a characteristic erythema of the skin at the site of irradiation.

The erythema dose of light produces a marked local hyperaemia and excites a local white cell infiltration of the epidermal tissues. The endothelial cells are swollen and enlarged, and the transudation of fluids through the walls of the capillaries is altered. The exudation of plasma produces an intradermal oedema of the tissues at the irradiated area. The minimal erythema dose of ultra-violet rays applied to the skin, the peritoneum, abdominal viscera, or subcutaneous tissue increases the bactericidal properties of the shed defibrinated blood tested *in vitro*. The maximum effect is obtained by irradiation of 20 to 30 sq. cm. per kilogram of weight. This bactericidal effect originates locally at the site of irradiation, and is carried by the blood stream into the general circulation. These results support the theory that ultra-violet rays have a photo-biochemical action on the living cells and produce a substance which has bactericidal properties. The local effect of ultra-violet rays increases the immunity of the skin. This may explain the beneficial action of the local irradiation of lupus lesions, and is due to the increased leucocytic infiltration and the production of a bactericidal photo-biochemical substance.

Workers at the Copenhagen Light Institute have developed the use of the short-flame carbon arc, and have successfully treated many cases of lupus vulgaris of the skin and mucous membranes. The ultra-violet rays emitted from this source of light are mostly long rays. In their technique the whole surface of the body is exposed to light for twenty minutes to two hours twice or three times a week. This technique is only suitable for chronic types

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of disease and in non-febrile conditions. Although many excellent clinical results have been obtained by various clinicians, the experimental evidence obtained from the observations of the immunity of the skin following irradiation and the study of the haemobactericidal response to light suggests that overdosage and excessive exposure have been frequent. The application of an erythema dose of rays renders the irradiated area immune to further reaction for three or four days; this is due to the protective screening action of the exudates in the inter-epidermal tissues. During the stages prior to desquamation the skin is still immune to radiation, since the dead epidermal cells screen off the biological active rays. During desquamation the exposed epidermal tissue is hypersensitive to light, and an irregular action results, demonstrating immune and hypersensitive areas. From these observations it seems right that a period of ten to fourteen days should elapse between the exposures of any given areas of skin. In this way the skin can be kept sensitive to ultra-violet rays for a long period, and excessive heating of the body by prolonged exposure is avoided.

The Finsen Light Institute at Copenhagen claims as good results as Rollier obtains with open air and sunlight. The possible errors of the technique with ultra-violet rays with short-flamed arcs are: (1) The area of skin exposed is too big. (2) The skin is rendered immune to ultra-violet rays. (3) The body is overheated by prolonged exposures. (4) It is unsuitable for febrile diseases. (5) It is laborious and expensive.

From these observations I have adopted a special technique of general treatment with lamps emitting ultra-violet rays shorter than 2,970 A.U., which I have called "short ray" therapy.

1. The source of light is a quartz mercury vapour lamp, and at later stages, when pigmentation has developed, metal-cored 30-ampere carbon arcs.
2. The surface area of skin exposed is roughly equal to one-sixth of the surface area of the body.
3. An interval of ten to fourteen days is allowed between irradiation of any given area of skin.
4. Irradiation is conducted two or three times a week.
5. The minimal erythema dose is applied, and the skin is kept in a "light-sensitive" state during the whole period of treatment.

The "general" irradiation of the normal skin improves the health and body resistance. Early cases of lupus of the skin, nasopharynx, palate, and larynx have been healed by these means. The cases in which chronic ulceration and hard scar fibrous tissue are present are more resistant. Many catarrhal and inflammatory conditions of the mucous membrane are due to general failures of health, associated with a secondary anaemia and vasomotor disturbances. Light has often proved a valuable help and has improved these conditions.

The healing of septic wounds and the repair of granulation tissue are accelerated by general irradiation. In cases of subacute disease and acute inflammatory conditions the cautious use of irradiation of the skin can be helpful. In these types of condition the application of the minimal erythema dose and exposure of a small area of skin to light is a safe technique of treatment. General light treatment has been successfully employed as a post-operative measure, and accelerates the healing of septic wounds and young granulation tissue.

The local treatment of a lesion with correct dosage of light accelerates repair. Some early investigators have maintained that a direct bactericidal action was obtained by means of the water-cooled Finsen-Reyn arc lamp or the mercury Kromayer lamp, but this is an erroneous impression, for serum and lymph greatly impede the penetration of the bactericidal rays.

Excessive dosage produces necrosis of the tissues and extensive oedema, which may cause a spreading infiltrating cellulitis. This applies mainly to subacute conditions when the granulation tissue is vascular, but is uncommon with chronic fibrous ulceration such as is seen in old-standing conditions of lupus vulgaris. The careful dosage in local irradiation, producing a mild erythema reaction and avoiding excessive damage to the tissues, will hasten the healing and repair of many types of septic wounds.

The normal mucous membrane is about three times as sensitive to light compared to the normal white skin. Many cases of tuberculous disease of the mouth, throat, or nose can be healed by general light treatment of the skin. As a rule they react more favourably and quicker than the skin, since the granulation tissue is more vascular and ulceration does not contain hard, old fibrous tissue. Strandberg has claimed good results in the treatment of tuberculous disease of the larynx. Local treatment to the mucous membrane accelerates repair and regeneration of granulation tissue. The application of local light through the mouth to the pharynx and larynx necessitates an apparatus by which the effects of radiation are rapidly obtained. Irritability and pain are prominent symptoms, and only a rapid form of treatment is practicable.

The use of quartz rods and applicators to transmit the rays of light to the site of infection are unsatisfactory, as the intensity of radiation is reduced, and the apparatus becomes cumbersome and is impossible to use for a practical therapeutic exposure. The same criticism applies to the use of reflected light from mirrors. The water-cooled throat lamp (made by the British Hanovia Quartz Lamp Company) is based on the same principles as the water-cooled Kromayer mercury lamp, but is sufficiently small to be readily inserted into the mouth, pharynx, and naso-pharynx. The intensity of ultra-violet rays emitted is sufficient to produce an erythema reaction after 60 seconds' exposure of the mucous membrane. A quartz envelope surrounds the burner, and can be easily removed to clean the lamp.

Local anaesthesia with eucaine and cleansing of the irradiated area are necessary before light is applied to the mouth. The reactions of the mucous membrane are similar to those seen when the skin is irradiated; erythema and oedema are evident, and massive exposure produces necrosis and blistering of the mucosa. Since the mucous membrane is more sensitive to light than the skin the regulation of dosage must be made with great care. Excessive dosage can cause a spreading infiltration and acute inflammation which will produce a general reaction of the body, with increased temperature and malaise. In cases of tuberculous disease of the larynx and palate the lungs are often involved, and the irradiation of the local lesion in the mucous membrane may cause reaction of the lung infection. Careful supervision of the lung is imperative. The irritability and pain associated with ulceration of the lesions are rapidly diminished after treatment.

Local treatment is applied every ten to fourteen days. The combination of exposure of areas of the normal skin to irradiation twice or three times a week and local treatment every ten to fourteen days to the lesion has proved successful in resistant cases of lupus and tuberculous disease of the palate, pharynx, and larynx.

Further research on treatment by means of sensitizers and ultra-violet radiations emitted by high-frequency current is in progress.

RADIOGRAPHIC FINDINGS IN 347 PAINFUL SHOULDERS.

BY

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FOR the purpose of this paper I have examined the radiographs of 347 patients who came for *x*-ray examination on account of pain in the region of the shoulder-joint during the past three years.

I have not included any patients attending the casualty department with a history of recent injury to the shoulder. On the other hand, many patients complaining of a painful shoulder would not be sent for an *x*-ray examination, as the clinical investigation revealing definite visceral pathology would furnish sufficient explanation for the symptom. I have seen several patients whose chief complaint was pain around the left shoulder and arm with acute exacerbation in whom the only lesion to be found was a cholelithiasis.[2(d)] In many instances the condition appeared to be due to toxic absorption, and the patient

was sent only for a radiographic examination of the teeth, sinuses, etc. Frequently the radiograph of the painful joint showed no bone or joint change, but definite apical abscesses or evidence of sinus infection were detected.[2]

	The Queen's Hospital.	Royal Cripples Hospitals.	St. Chad's Hospital.	Pensions Hospitals.	Total.
Total	149	54	53	91	347
Normal	90	20	19	48	177
Arthritic changes:					
Acromio-clavicular joint	23	8	10	10	51
Shoulder-joint ...	6	3	4	11	24
Loose body...	2	4	4	(?)1	11
Old fracture	11	6	7	(not included)	24
Dislocation (unreduced):					
Acromio-clavicular joint	4	—	4	,,	8
Shoulder-joint ...	2	—	2	,,	4
Tubercle	4	8	1	16	29
Cyst of humerus	—	1	1	—	2
Carcinoma	2	—	—	—	2
Sarcoma	2	1	1	—	4
Myeloma	2	—	—	—	2
Exostosis	—	2	—	—	2
Osteomyelitis with arthritis	1	1	—	5	7

The table shows that the most frequent site of injury or arthritic changes to appear on the radiograph is the acromio-clavicular joint. Most of the shoulder-joints which had been dislocated showed definite changes. The most common evidence of arthritis in the shoulder-joint shown on the radiograph was pointing and irregularity of the articular margins.

The areas in the head of the humerus described by A. L. Fisher[4] as cavities, which he believes to be due to local necrosis brought about by amoebic infestation, and as being characteristic of the first signs of osteo-arthritis, I have regarded as varieties of the normal cancellous structure of the head of the humerus, because they are found in many patients in whom there is no suggestion of osteo-arthritis. Fisher admits that such areas are found when there is no other radiographic evidence of arthritic changes. Apart from the pensions hospitals, definite marked osteo-arthritic changes, as shown by indications of erosion and eburnation in the shoulder-joint, were seen in only one case.

Loose bodies were seen in only 3 per cent. of the total cases. In all these cases there was a definite history of severe injury. In five a definite history of dislocation was obtained, and in these cases the radiographic appearance suggested detached fragments or calcification of particles of damaged joint structures. The remaining three suggested calcareous deposits in the subcoracoid and subdeltoid bursae.

No case of the condition of osteo-chondromatosis occurred in the series. The loose bodies in this condition usually contain sufficient calcium to permit of their demonstration by *x* rays. Hagemann[8] recorded a case in which the bodies were shown in the shoulder-joint, in the bursa beneath the coracoid process, and in the synovial sheath of the tendon of the biceps. Albee[1] recorded a case in which sixty-four joint mice were found in the shoulder of a patient, aged 33, who gave a history of trauma thirteen years before. Hugh Jones[8] records a case of osteo-chondromatosis of the shoulder-joint of a girl of 20, in whom the symptoms extended back twelve years. They were removed, but a further radiograph sixteen months later showed that a new collection had developed.

The presence of "rice" bodies in the joint usually cannot be detected on the radiograph, and there was no record of these bodies having been found in the shoulder-joint or bursae in this series. Mumford[10] records a case in which a large number of rice bodies, not shown on the radiographs, were removed from a large subdeltoid bursa, the walls of which microscopically suggested the diagnosis of tubercle.

In my experience recurrent dislocation of the shoulder is not often associated with loose-body production.

Fractures and Dislocations.—The numbers recorded under these headings refer only to those cases in which the fracture or dislocation had not been suspected or diagnosed at the time of the injury, and had been found only when, owing to the persistence of the pain in the shoulder, and sometimes at the demand of the patient, a radiographic examination was made. The majority of the bone injuries so discovered were limited to the greater tuberosity of the humerus.

Lesions in the Soft Tissues.—The radiograph does not give any evidence of inflammatory conditions of the muscles, tendons, or bursae unless they have existed for some time and calcium has been deposited in or upon the damaged structures. I reported two cases of infestation with *Cysticercus cellulosae* to a meeting of the Electro-Therapeutic Section of the Royal Society of Medicine in 1925.[2(c)] These patients complained of "rheumatic" pains, and radiographs showed calcified cysts throughout the musculature of the shoulder. I referred to similar findings by Stieda, Saupe, and Pickler, and to a case of trichinosis reported by Levy Dorn in 1923 in which the radiographs showed numerous minute calcified cysts throughout the musculature.

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ASTHMA IN CHILDREN.

BY

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ASTHMA occurs in young children more frequently than is generally supposed, for in infancy the clinical picture often differs from that seen in adult life: catarrhal features are much more in evidence and tend to obscure the diagnosis.

CLINICAL TYPES.

Above the age of 5 or 6 years the attacks are usually of the adult type, occurring at irregular intervals, and characterized by the sudden onset of dyspnoea, usually in the early hours of the morning. There is often considerable distress, the face is pale or cyanosed, the chest more or less fixed in the position of inspiration, and expiration is difficult, prolonged, and wheezing. Fever is usually absent. Cough is dry and hard at first, but, as the attack passes off, it becomes loose, and is associated with the appearance of bubbling rales in the chest. The duration

of these attacks varies from a few minutes to a few hours. If they are frequent and severe they may occasion considerable impairment of health, but as a rule the patient remains well in the free intervals unless structural changes have been produced in the lungs.

In infancy the manifestations are often different. There is sometimes no spasmodic dyspnoea, and the attacks resemble acute bronchitis. They are characterized, however, by a sudden onset, a moderate or slight degree of fever, a brief duration of only one or two days, and by a rapid subsidence. They recur at irregular intervals in the same way as do those of the adult type. More often the onset is less acute and sudden, and cough, dyspnoea, and wheezing respiration may sometimes persist for several weeks, with exacerbations at night. Sibili are plentiful in the lungs, and after prolonged or repeated attacks there may be evidence of emphysema, which often disappears completely if the asthma can be relieved. Milder forms are often seen, in which a brief cold is followed by cough and wheezing for one or two days.

Etiology.

Asthmatic attacks are more common in boys than in girls, and may occur at any age, even during the first few weeks of life. John Thomson[1] records that of 100 cases occurring in children under 14, no fewer than 29 arose before the age of 2, and 31 between the ages of 2 and 4—that is to say, 60 per cent. began in the first four years of life. There is often a history of asthma in other members of the family, but this is by no means always the case.

The sudden onset of classical asthmatic attacks with expiratory dyspnoea, distension of the lungs with air, and evidence of catarrh has long suggested that the anatomical basis consists in spasm of the bronchial muscles, associated with swelling and exudation from the mucosa. It is this latter feature which seems to predominate in infancy. As long ago as 1910 it was pointed out how closely these conditions resemble those which are found in young guinea-pigs dying of anaphylactic shock, and it is now generally admitted that asthma is a manifestation of allergy, occurring in patients who have either inherited or acquired a hypersensitiveness to certain protein substances. The rapid improvement which follows the injection of adrenaline affords additional support to this hypothesis. In most cases the offending material is probably inhaled, but it may also be ingested, or absorbed from some septic focus. There are many instances in which this hypersensitiveness is undoubted. For example, there are patients who develop asthma only after contact with some particular material—it may be the dandruff of animals (notably of horses or of cats), the pollen of certain grasses or flowers, or some foodstuff, such as egg. If the offending substance is avoided the attacks cease, only to return after fresh exposure. Often, however, neither history nor cutaneous tests with likely proteins reveal any particular cause, and the precise nature of the allergen remains unknown. However, Professor van Leeuwen and his associates[2] have produced much interesting evidence as to the common sources of such bodies. He divides them into two classes: (*a*) those occurring in the dust of the general atmosphere, and (*b*) those in household dust, to which many asthmatics seem to be particularly susceptible. It is interesting to note that allergens of class (*b*) do not seem to occur in hospitals or similar institutions, and that asthmatics who are susceptible to them remain well, provided that they do not sleep in private houses. By placing patients in specially constructed chambers from which all dust is excluded Professor van Leeuwen has been able to keep them from attacks. This work adds point to the well-known fact that people who suffer from asthma in one locality may be quite free from it in another.

Clinical Diagnosis.

It is in the infantile forms that the diagnosis is most difficult, and such cases are often overlooked or mistaken for a simple bronchitis, particularly if prolonged observation is impracticable. The points which attract attention in the bronchitic type are the sudden onset with dyspnoea and wheeziness, the brief duration, and the rapid subsidence, followed by recurrence at irregular intervals. The milder and much more common cases with a brief catarrhal onset are more easily recognized, especially when the succeeding period of wheeziness is short and the attacks recur frequently. Many of the more protracted cases have been diagnosed as mild bronchitis with added bronchial spasm, or have been described as spasmodic bronchitis. There seems little doubt, however, that they are genuinely asthmatic in origin.

Attacks of the adult type are usually quite characteristic. Sometimes, however, other possibilities have to be considered. The sudden onset may arouse the suspicion that a foreign body has lodged in the respiratory tract. The dyspnoea of laryngitis—particularly of diphtheritic laryngitis—may sometimes suggest asthma, but here some evidence of laryngeal obstruction is rarely lacking. The rare condition known as thymic asthma is unfortunately named. Its etiology is, of course, entirely different from that of true asthma, the dyspnoea being caused, it is alleged, by the pressure of a large thymus on the trachea. It is important to remember that in all these conditions the chief difficulty in breathing occurs in inspiration rather than in expiration—the reverse of what obtains in a genuine asthmatic attack.

There are two conditions which, when present, help to confirm the diagnosis of asthma. These are (*a*) urticaria, and (*b*) a definite eosinophilia. There is also a therapeutic test which, although not infallible, is very valuable. This consists in the prompt improvement which so often follows the subcutaneous administration of adrenaline. This response is less definite in long-standing than in recent cases.

Treatment of the Attack.

The patient is put to bed, if not already there. From 5 to 10 minims of a 1 in 1,000 solution of adrenaline are injected subcutaneously. Relief from the bronchial spasm comes quickly, usually well within a quarter of an hour, though it may not last long enough for the attack to be abolished in this way. Next, it is well to cover the chest, front, and back with a mustard poultice until the skin is red; this takes about a quarter of an hour. After removing the poultice, grease the skin. The treatment may be repeated in three or four hours, provided the hyperaemia produced has subsided. A diaphoretic expectorant mixture, such as that recommended by John Thomson, namely:

Vin. ipecac. ...	...	...	...	...	...	...	℥v
Sp. aeth. nit.	...	...	...	...	...	...	℥v
Liq. ammon. acet. ...	...	...	...	...	...	...	ʒss
Aq. cinnamomi	...	...	...	...	...	ad	ʒj

should be given every four hours. When the acute attack is over, potassium iodide, 1 to 4 grains, in a mixture containing 5 minims of tincture of belladonna and 5 minims of ethereal tincture of lobelia, should be given thrice daily until the chest is clear.

Prophylactic Treatment.

We wish to dwell chiefly in this article on the treatment of the underlying conditions which predispose to asthmatic attacks, for if attacks can be reduced in severity, and the interval between them prolonged, the greatest danger to the child—emphysema and chronic bronchitis—may be averted.

Before considering treatment of the allergic state, it is essential to carry out a thorough examination of the upper air passages. A chronic nasopharyngeal catarrh, probably sustained by infected tonsils and adenoids, or chronically inflamed nasal sinuses, demands adequate treatment.

Asthma is, as we believe, a symptom resulting from allergic reaction in the bronchioles; the prevention of such reactions may be considered under two headings.

Avoidance of Contact with the Allergen Responsible.

It is probably true that if contact with the responsible allergen could be avoided for many years, the patient would become spontaneously desensitized. In any case, if it is possible to keep the child away from the offending substance for long periods, the diminished frequency of asthmatic attacks will go far to prevent structural damage to the lungs. Prophylactic treatment in this direction must therefore be given fullest consideration. In some

rare cases careful observation of the conditions immediately preceding an attack of asthma may lead to the discovery of the substance responsible; it may be the presence of a cat, or a horse, or a feather pillow, or the ingestion of some food. These cases are very rare, but in them prophylaxis by avoiding contact with the substance to which they are sensitive is not, as a rule, difficult. If there is no such clue to the specific allergen responsible, it is scarcely worth while to attempt its detection by protein skin tests. The results in almost all cases are equivocal: in some cases a reaction is obtained with a large number of substances, in others with none of the substances used. There is, however, good reason to believe that in the great majority of cases the allergen which is causing attacks of asthma is inhaled. In the absence of a specific diagnosis, it is our duty then to investigate the effect of environment of the case. If any locality is found where the child is free, or comparatively free from attacks, let him stay there for as long periods as possible. We know that a large proportion of asthmatics are free from attacks at high mountain altitudes. Many London children are free from attacks in the country.

Attempts at Desensitization.

(*a*) *Specific Desensitization.*—In those rare cases where the offending substance is discovered, and where avoidance of contact with it is difficult, specific desensitization may be tried. Repeated subcutaneous injections with the substance, beginning with minute doses which are very gradually increased, may ultimately so reduce sensitiveness that the patient remains symptom-free. This is a method of treatment not to be lightly undertaken; it should be left to experts. Such patients are often highly sensitive, and it is easy to precipitiate severe symptoms resembling anaphylactic shock in animals. Dudgeon[3] has recorded the case of a lady who had suffered from severe horse asthma from childhood. Deciding to attempt specific desensitization, he gave as an initial dose 0.25 c.cm. of serum. Within five minutes of the injection she was comatose, with signs of severe pulmonary oedema and heart failure. A reaction may occur with such alarming suddenness that an injection should never be made without having ready a solution of adrenaline.

(*b*) *Non-specific Desensitization.*—Experience shows that sensitiveness to a particular allergen may be diminished by treatment not only with this allergen, but also with any other substance to which the patient may be sensitive. When skin reactions are obtained with many different proteins, good results may be expected by treatment with any one of them. We may speak of this as non-specific desensitization—though it is possible that we are really using the specific allergen which happens to be a common component of many different substances. Professor van Leeuwen found that the majority of asthmatics were sensitive to old tuberculin. Deciding that it was therefore rational to attempt non-specific desensitization by repeated injections of small and gradually increasing quantities of old tuberculin, he proceeded to carry out this treatment in a large number of cases, and has reported striking success. The method has been used to some extent in this country, and a recent report by T. M. Ling[4] shows that results in children are encouraging.

Briefly the method is as follows: a series of decimal dilutions of old tuberculin is needed, conveniently put up in rubber-capped vaccine bottes—namely, 1 in 100, 1,000, 10,000, 100,000, and 1,000,000. The possibility of active tuberculosis is excluded as far as possible. A scratch skin test with pure old tuberculin is then performed, and the size of the initial dose is judged by the results. If there is a very intense reaction, the first dose should be 0.1 c.cm. of the 1 in 1,000,000 dilution. With a moderate reaction 0.5 c.cm. of this dilution may be given, and with a negative reaction 0.1 c.cm. of 1 in 100,000. Injections are given twice a week, each dose being increased by 0.1 c.cm.: after about four months the interval is increased to one week, and later, for the last four months of treatment, to two weeks. Treatment must be continued for a year or longer. When definite improvement seems to have been achieved, no further increase in the dose is made.

We are able to report on nine cases treated by this method during the last twelve to eighteen months at the East London Hospital for Children, Shadwell. The results have convinced us that in old tuberculin we have a most valuable ally in the treatment of asthma in children. The mothers have brought their children with striking regularity. They are in no sort of doubt that marked improvement has occurred during the course of treatment. An early improvement in the child's general condition is especially noticeable. We may add that a point which seems to throw some doubt on the rationale of this treatment is that we have not seen a positive skin reaction with old tuberculin in any of our cases.

Eight of our cases are boys, one a girl. The most striking successes are Nos. 2, 5, 7, and 8 of our series.

Case 2 is a boy, aged 6 years, who had had attacks of asthma every two to three weeks in the winter months, and at rather longer intervals in the summer, for four years, and who, for a period of about two months shortly before tuberculin treatment was started, was having attacks almost every night. Eighteen months' treatment by the usual methods produced no improvement. He has been treated for one year by injections of tuberculin, and during that time has had only three attacks of asthma.

Case 5 is a boy, aged 8 years, who for about four years had suffered from asthmatic attacks at roughly three weeks' interval. During sixteen months of treatment by the usual methods he had nineteen attacks. During the following twelve months he was treated with tuberculin, and had only five slight attacks.

Case 7, a girl, aged 10 years, had suffered from asthma for about 5 years, attacks occurring at roughly monthly intervals. During 10 months of treatment by the usual methods, and with peptone injections in addition, she had twelve attacks. This was followed by tuberculin treatment, which has been given now for seven months; during this time she has had only three slight attacks.

Case 8 is even more striking, for no attacks whatever have occurred during six months' treatment in a child who was having them at four to six weekly intervals.

Cases 4 and 6 of our series show a slight improvement only—not strikingly different from that obtainable by the usual methods. Cases 1, 3, and 9 are improved, but to an even less degree.

We feel confident in saying that six out of our nine cases have derived considerable benefit from tuberculin injections, and that this is a method which might with advantage be used much more extensively in this country.

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THE USE OF EPHEDRINE IN ASTHMA AND WHOOPING-COUGH.

BY

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THE introduction of ephedrine into the realm of therapeutics has not received the attention in the English literature which it merits. The main facts as at present known of its therapeutic and pharmacological action are as follows:

1. The pharmacological action and chemical structure resemble those of adrenaline.

2. The salts of ephedrine, the hydrochloride and the sulphate, are remarkably stable, and solutions of them can be boiled without any decomposition or loss of activity. They are effective whether given orally, hypodermically, intramuscularly, intravenously, or intrathecally.

3. Ephedrine raises the systolic blood pressure. Although it acts more slowly and less completely than adrenaline, yet its action is more prolonged.

4. In animals ephedrine causes contraction of the uterine musculature.[1] It thus differs from adrenaline in this respect.

5. Spasm of the bronchi, not only induced experimentally in animals, but also occurring in asthma, is relieved by ephedrine.

6. Locally the drug acts as a mydriatic[2] and blanches mucous membranes, as those of the nose and pharynx.[3]

7. Given in large doses to animals, its action resembles that of adrenaline in stimulating the release of glycogen from the liver, thus raising the blood sugar.[4] I have found, however, that therapeutic doses of 1/2 grain to 2 grains do not raise the blood sugar level in the normal or diabetic subject.

8. Its clinical application in internal medicine has been extremely wide, but the best results have been obtained in asthma, hay fever, and whooping-cough.

The results reported in this paper have been obtained as a result of treatment of cases of asthma and whooping-cough.

BRONCHIAL ASTHMA.

Nineteen cases of asthma, in patients of various ages, were treated with ephedrine hydrochloride. They may be divided into two groups according to whether they were suffering from (*a*) acute attacks of pure asthma, or (*b*) asthma complicated by bronchitis and emphysema. The majority of these patients had at least one attack per diem, and were in a persistently wheezy condition.

The scale of dosage of ephedrine hydrochloride which was found most satisfactory was: adult, 1/4 to 1 grain; 1 to 5 years, 1/6 grain. The drug was given to adults in tablet form, and to children it was prescribed along with 10 minims of glycerin and chloroform water to the drachm. It is not advisable to give a larger dose than 1 grain, because toxic symptoms are more liable to occur, and, moreover, larger doses do not exert any more beneficial action. Some patients have an idiosyncrasy to the drug, and even 1/2 grain may produce toxic symptoms.

The adult patients of the first group, when seen for the first time in an attack, were given 1/2 grain of ephedrine orally or subcutaneously. When complete relief was obtained it followed oral administration in twenty to forty minutes, and hypodermic injection in ten minutes. Relief is sudden, and occurs simultaneously with the rise in systolic blood pressure, except in those few cases in which the blood pressure is initially high, when it remains unchanged. Oral administration was usually adopted, but in severe cases subcutaneous injection was resorted to occasionally. When the diagnosis and absence of idiosyncrasy were established the patient was instructed to take the drug by the mouth immediately an attack was imminent. In this way attacks were often aborted. In cases of nocturnal attacks the patients received the drug orally just before retiring for the night. They were encouraged to retire after 11 p.m. and forbidden to take any food after 7.30. An undisturbed night usually followed. In those cases in which an attack occurred in spite of the drug a further 1/2-grain dose was taken immediately on waking. This successfully aborted the attack. Eventually it was found that the one dose of 1/2 grain taken on retiring ensured an undisturbed sleep. Unless the nocturnal attacks are frequent it is not advisable to give the drug every night as a prophylactic, but rather to administer it when the attack occurs. In this way any tendency to the development of tolerance is obviated.

Patients in the second group, in whom several attacks occurred during the day, received the drug orally two to four times daily. A very important point in the oral administration of ephedrine is that the drug must be given at least thirty minutes before a meal if an optimum action is to be obtained. In this way one ensures as far as possible that the drug is taken on an empty stomach, and that complete absorption has occurred before food is taken. Thus, if ephedrine is to be given twice a day to an asthmatic or to a child suffering from pertussis, it must be taken at least thirty minutes before breakfast and just before going to bed. The last meal should be taken at least three hours before the patient retires for the night. The results obtained on using this plan were:

GROUP I (10 cases).

Great relief	7
Relief, but toxic symptoms prevented use	1
Failure	2

GROUP II (9 cases).

Number of attacks decreased	4
Period of fewer attacks followed by failure	2
Failure due to toxic symptoms	1
Complete failure	2

The following classification of these cases has been obtained as a result of the study of the history, clinical condition, and severity of the attacks.

GROUP I.	*Results of Treatment.*
Short history of pure asthmatic attacks, mild or moderately severe	Complete relief.
Long history of pure asthmatic attacks, mild or moderately severe, and with over a week between attacks	Successful.
Severe attacks	Complete failure.
GROUP II.	
Complicated asthma with frequent mild and moderate attacks	Some success.
Complicated asthma with severe attacks	Failure.
Complicated asthma, if tolerance develops	Failure.

One dose of ephedrine gives relief from asthmatic symptoms for three to six hours, but its effect on the systolic blood pressure is shorter. Toxic symptoms occasionally occurred. Palpitation was the commonest, occurring in three cases, headache in two cases, and insomnia in two cases. They were usually slight, but two patients refused to take the drug because of the discomfort. Some degree of tolerance often occurs in cases receiving ephedrine three to four times daily. In two cases the drug failed to give any relief after three weeks' treatment. No cumulative effect of the drug was observed.

PERTUSSIS.

Twenty cases of whooping-cough in the paroxysmal stage were treated with ephedrine hydrochloride. The following points were ascertained before treatment was commenced: (1) the paroxysmal stage had not been present for more than one week; (2) all other drugs were withheld; (3) severe bronchitis was absent.

The success or otherwise of the drug had to be judged by the report of the parents. They were instructed to notice and record (*a*) the number of paroxysms of coughing occurring, particularly at night, and their severity; (*b*) the frequency of vomiting; and (*c*) the number of times the child was heard to whoop. The cases were seen on an average every three days.

The scale of dosage used, according to age, was: Over 5 years, 1/4 to 1/2 grain; 1 to 5 years, 1/6 grain; 6 to 12 months, 1/8 grain; and under 6 months, 1/12 grain. Due regard was paid to the weight of the child. The drug was prescribed with 20 minims of glycerin, and chloroform water to the drachm, and given one to three times a day according to the severity of the case. The same precautions in administration were observed as in the treatment of asthma.

As a result of treatment of these cases it was found that ephedrine gave considerable relief to cases of mild and moderate severity, but in very severe cases it appeared to have no more value than any other remedy given internally. Only in the severe cases, in which ephedrine alone had failed to produce any marked relief, was any other drug administered along with ephedrine. In these cases the following prescription was used:

℞ Ephedrine hydrochloride	According to age	
Tinct. belladonnae	♏	5
Vin. ipecac.	♏	5
Syr. balsam tolu	♏	30
Aq. chloroform.	ad	1 drachm

Belladonna and expectorants, although by themselves practically useless in any case of whooping-cough, if given in conjunction with ephedrine enhance its action. It was found that in these severe cases the mixture gave slightly more relief than ephedrine alone. The beneficial action of the drug is first made evident by the paroxysms of coughing becoming shorter and less severe. Later, with the shortening of the paroxysms, the whoop and vomiting become less frequent. Finally, in successful cases, the child is left with a cough which in no way resembles the violent one of pertussis. It must be stressed, however, that although the violent cough, whoop, and vomiting are relieved, the disease, as shown by malaise, irritability, sweating, etc., continues. No definite toxic symptoms were observed with the dosage used, though sweating was perhaps a little more marked.

CONCLUSIONS.

1. Ephedrine has a definite beneficial effect on moderate attacks of asthma, their number and severity being diminished or even completely aborted.

2. It has no effect on severe attacks of either simple or complicated asthma.

3. Its effect in pertussis is to relieve the violent cough, the whoop, and vomiting, in mild or moderate cases. In severe cases there is no effect at all. The progress of the infection is not influenced, the relief being limited to the mechanical factor.

4. Ephedrine appears to act by relieving the local spasm in the broncho-constrictors. This spasm is produced by the irritant effect of the tough mucus on the mucous membrane, made hypersensitive by the toxins of *B. pertussis*. By relief of this spasm the irritant mucus can be removed without the violent expiratory efforts or coughs which are usually necessary. The paroxysms are thus made shorter and less severe, and hence in favourable cases the whooping and vomiting disappear. Belladonna paralyses the broncho-constrictors, and thus aids the action of ephedrine, which stimulates the broncho-dilators. If belladonna be given with ephedrine it is necessary to antagonize the "drying effect on the secretion" of the former drug by giving an expectorant. In bringing about this effect ephedrine in no way influences the course of the infection, but simply relieves the mechanical difficulty of removing the secretion and hence minimizes the exhausting efforts on the part of the child.

[Since this article was written a further 10 cases of asthma and 15 cases of pertussis have been treated with ephedrine. Similar results were obtained to those described.]

I am indebted to Dr. Jewsbury for permission to publish my results on many of the cases.

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A NOTE ON A SYMPTOMATIC TREATMENT OF ASTHMA.

BY

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A FEW short notes on a symptomatic treatment of asthma which has been in use for over four years, and has given consistently good results, may be of interest and possibly of value to others. Accurate figures of the number of patients treated are quite unobtainable, for the majority have been out-patients, and the records are practically impossible to collect. It is estimated that at least three hundred cases have been treated, and only two have shown so little improvement that admission became necessary.

This "system" is not intended to be employed alone, except in asthma of children; in them it has given good results, and in a fair proportion there have been long intervals of freedom from symptoms. In adults the treatment is usually associated with some form of radiotherapy—either *x*-radiation of thorax or spleen, or ultra-violet radiation of the surface of the trunk; or it has been combined with some form of specific or non-specific protein therapy. As this article is not concerned with the whole treatment of asthma, these associated treatments will not be discussed further. A sufficiently large proportion of the cases have been treated solely by this method to convince me that it is of value.

Before starting treatment various etiological factors are inquired into, and removed when possible. Most attention is given to the contents of the bedroom in cases with nocturnal incidence, and to clothing, occupation, and diet of the cases with variable or diurnal attacks. All are advised to take a light supper or dinner and to attend to the common rules of hygiene. In view of the known clinical and experimental relationship of asthma to lesions of the nasopharynx, this is carefully examined and treated if necessary.

This series contains a number of cases of hay asthma and hay fever; both have responded well. The calcium mixture should be administered for about six weeks before the attack is due. The calcium mixture has been altered many times, in attempts to make it more palatable and stable; we have not been able to better the formula now published. It is the camphor which causes most trouble; many people are susceptible to it and develop nausea or syncopal feelings. The camphor may be omitted in cold weather, but in summer the mixture decomposes in a few days unless camphor is present. The calcium mixture contains:

Albuminate of calcium chloride	15 grains
Simple syrup	15 minims
Water	1 ounce

The dose of albuminate is in terms of calcium chloride.

One ounce is a full dose. To this amount is added one-third of a minim of liquor atropinae (*B.P.*). It is given thrice daily for about two weeks and the result is watched. Then the amount of atropine is increased or diminished to that which gives definite, but slight, dryness of the mouth. It is found that it is necessary to reach the lower level of toxicity to obtain alleviation with atropine. Children are given a slightly smaller dose; it is well known that children stand atropine well.

It is not so easy to dispense this mixture as might be thought; it is very much better to make it in bulk, but the addition of the atropine should be reserved until the mixture is issued. The best method for making the albuminate above mentioned is as follows:

Take the whites of seven fresh eggs, add an equal amount of distilled water and 25 grains of powdered camphor. Shake, and let stand for two hours or so. Strain through muslin. Dilute to one pint with distilled water and then add 30 ounces of 1 in 3 aqueous solution of calcium chloride. Filter, and, if necessary, make up the volume to 50 ounces.

The dose is 1/2 to 1 fluid ounce, taken thrice daily, after meals. Many patients find that it is less unpleasant if taken in milk, others do not agree. It certainly is so unpleasant that the patients would not go on with it unless there was some decidedly good result. After some weeks of it most of the patients appear to acquire some tolerance and a few even get to like it. A strong peppermint immediately before drinking the mixture is useful. It should be taken regularly, even if the attacks cease, and it should be continued for at least a month after the last attack.

This mixture is used a good deal locally in other conditions in which calcium medication is necessary. It has been found of use in the related conditions—angio-neurotic oedema, urticaria, eczema, and erythema pernio. In these it should be associated with administration of ostelin and parathyroid extract. For some years Messrs. Ferris and Co. of Bristol have manufactured it for private patients; it is called Mist. calci chlor. (alb.) locally, for ease of prescribing.

The second part of the treatment is the administration of the caffeine mixture. This is given in drachm doses at the onset of symptoms, or before the onset when possible. In the event of regular nocturnal attacks a dose is taken before going to bed, and the bottle is kept at the bedside in order that another dose can be taken as soon as any symptom appears. The irregular cases carry a small flask of it about with them. It is quite safe to give several doses in twenty-four hours. This caffeine mixture is called "caffneine" locally, again for ease of prescribing, and has been manufactured by Messrs. Ferris for some years. It contains:

Caffeine sodium iodide	5 grains
Sodium iodide	5 grains
Dilute hydriodic acid (*B.P.*)	5 minims
Decoction of coffee	50 minims
Water	to 1 drachm

The decoction of coffee is made in the usual way with 3 ounces of fresh coffee powder to one pint of water. This is filtered and the three iodides are added.

Before being issued for use 1/4 to 1/2 grain of ephedrine hydrochloride is added to each dose. This has been done for over a year; but the "caffneine" as issued by Messrs. Ferris at the present time does not contain ephedrine.

After two years of experience of ephedrine it is found that not more than 1½ grains should be administered in a day, otherwise unpleasant gastric and circulatory symptoms will be frequent. Children require a proportionately smaller amount.

Discussion of the Mode of Action.

This basal method is not purely empirical and the selection of the ingredients is not fortuitous. It is admitted freely that an exact explanation of the mode of action will have to wait until our knowledge of pharmacology is bettered. In brief, the actions appear to be as follows. Calcium may make up the deficiency of this element, which is usually found in asthma. The defect may be a part cause of the spasm and irritability of the bronchial muscles. It should act in depressing vagotonia, if this be present. It appears to be rather intimately linked with several pleuro-pulmonary disorders. It should reduce vascular permeability. Atropine is too well known to require discussion. Ephedrine has the same actions as adrenaline, but is effectively absorbed from the alimentary canal. Its effects are usually discernible about thirty minutes after ingestion; at least, this is so in cases of colic, in which it is of use also. It should reduce spasm of the bronchial muscles. It should reduce vagotonia, if present. Caffeine is difficult to account for, although it has enjoyed a reputation in asthma for years. Theoretically it should not be of use, for it acts in the opposite direction to ephedrine and adrenaline;[1] [2] the latter stimulate the sympathetic side of the vegetative system, the former paralyses it. Caffeine also causes increase of muscular irritability, and so is opposed to calcium. It is possible that it acts by its respiratory and circulatory stimulation. The iodides probably act as expectorants; but in part they may stimulate the sympathetic side indirectly.

It has been admitted that this explanation is scanty and incomplete, but a full attempt would take up much space and still be indecisive.

I have to thank Mr. A. L. Taylor and the pharmaceutical staff of the Bristol Royal Infirmary for their help in the preparation of these mixtures.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

IMMEDIATE ENUCLEATION FOR THE TREATMENT OF QUINSY.

SINCE 1915 I have performed tonsillectomy in various ways on more than 7,000 patients. As up-to-date journals or instruments were not available, for the first thousand or so I used different methods of enucleation by dissection, and still consider that for speed and sureness of removal finger dissection cannot be beaten. The clinic operator, who guillotines his fifteen or twenty an hour, should always have handy a Collins pile forceps, which is necessary in case, owing to previous operations or rigid muscles in the fauces, the guillotine has failed and the patient is coming round.

While watching the course of cases of quinsy the conviction grew that the disease was in reality a septic cellulitis, which settles down into an abscess only when Nature is winning the battle, and at varying rates of formation of pus. It is an attempt to get rid of an infected foreign body, and we should remove it to hasten cure and prevent future invalidism.

It is like taking off the rotting, useless trapdoor of a cellar which one wishes to empty and disinfect, and happens to be as simple. Acting on this assumption, I have performed over 120 of these operations, and have regretted none. Emboldened by the rapid convalescence, immediate relief from pain and fever, and perfect anatomical results, I have extended the operation, and now usually remove the opposite tonsil as well, and often the post-nasal adenoid tissue when present. I do this only when the clinical picture is one of sepsis being successfully fought and one can trust to the patient's plentiful supply of antibodies to heal the extra raw surfaces.

Usually it is not possible to operate until the third, fourth, or fifth day of the disease. Before the operation one should use heat in every form to aid the defensive forces of the system. Sometimes even then pus has not developed, and only cellular jelly meets the gloved finger. Even this, like pus, makes it easier for one to strip the often buried and adherent fibrous tonsil from its bed, the active inflammation digesting the adhesions to the overlapping anterior pillar and plica triangularis. In order to hasten the period of epithelialization of the raw surface one can leave much of the anterior pillar. But I believe the sole use of the muscle in it is to act as the front handle of the "lemon-squeezer" which is formed by the anterior and posterior pillars of the tonsil bed. The "squeeze" should help to empty the crypts of the tonsil during each act of swallowing, and, by the pain produced by swallowing when the tonsil is congested, prevents us from overeating when chilled or fevered. In sthenic or strumous people, who need much antibody in the system, the anterior pillar overlaps the tonsil very extensively, so that much of the tonsil juice is squeezed into the lymph vessels of the neck, where it can produce further effects in the glands. Hence, when we have removed the tonsil the squeezer muscle is unnecessary, and for a series of about 300 patients I removed the anterior pillars (including my own). The results were good, and the "beds" cleaner and free from the dirty clot which sometimes adheres in deep beds, but owing to the extra time taken during healing I usually spare it now.

The instruments are: (1) thick gloves; (2) tongue clip of towel-clip type; (3) gag (Sydenham's preferably); (4) long straight vulsellum or Lane's tissue forceps (I prefer Mayo's vein-dissecting forceps); (5) long blunt-pointed straight scissors (Mayo); (6) long straight Collins pile forceps, with oval fenestrated ends capable of clamping on to the large juicy tonsil when the upper half is stripped from its bed. One can get nearly all of a "ripe" tonsil free; the final movement with the Collins forceps is one of shoving the tonsil down the throat to peel its lingual tail off. Tags and fringes can be clamped and pulled off with it, and this stops bleeding well.

The position is: head extended, hanging down over the end of the table. The anaesthetic is ethyl chloride sprayed slowly on to a Skinner's mask well wrapped round with Turkish towelling, or, for longer work, atropine and chloroform. I have had some very severe and chronic quinsies to treat.

In one case of five weeks' duration with a history of fifteen previous attacks, a two and a quarter inch styloid process snapped off from the skull and came away attached to the back of the quinsy tonsil. Two cases occurred during pregnancy. One at three months proceeded to full term; another had to be operated upon at full term, and three days later I had to deliver her with forceps for a "deep transverse arrest." She made a perfect recovery.

I have several times operated thus for patients with infectious fevers, including scarlet fever and diphtheria, and for others with otitis media and mastoiditis. In one case there was a large cervical abscess, which, opened first, allowed the patient to breathe through the hole in the neck and the tonsil bed, when allowed to do so. The results were perfect, and no complications occurred. I have seen four patients die from septicaemia without an operation being possible—abscess not attempting to form. After operation two or three cases threatened to develop secondary haemorrhage, but the Collins pile forceps pushed well home over the spot, clamped, and jerked away, caused the elastic recoil and intra-vascular clotting in the coiled-up arteries needed to stop it.

This method never fails in the haemorrhage which sometimes follows the use of a too sharp guillotine, or the bleeding which sometimes comes in an alarming flood a few hours after the use of any of the two-bladed (crushing *plus* cutting) guillotines. In "bleeders" haemoplastic serum can be injected either before (if one has warning) or afterwards when one is caught unaware, *actually under the tonsil bed.* One should begin from above in the palate and travel down in the oedema caused by the serum; this relieves one from the fear of touching one of the vessels in the carotid sheath. This method stops "bleeders" from oozing, practically instantly. Few members of the working class, who suffer from quinsy repeatedly, can be induced to have an "interval" operation; and this, when it is performed, seems to me to cause much more pain than an operation undertaken during the quinsy.

Bishop's Stortford. R. A. R. WALLACE, F.R.C.S.

THE GLYCERIN TREATMENT OF PUERPERAL SEPSIS.

DR. REMINGTON HOBBS's method of treating puerperal sepsis by the injection of glycerin into the uterus forms, it is generally agreed, a very valuable addition to our armamentarium in fighting this dreaded disease. It depends on the highly hygroscopic action of the glycerin, which induces an increased flow of serum into the uterus. Two practical difficulties arise; one of these has been, so far as I am aware, overlooked, and the other has been only partially surmounted.

The first difficulty is that glycerin stored in ordinary bottles in a damp climate—Calcutta during the rains affords a good example—absorbs so much moisture from the atmosphere that its hygroscopic action on the uterus must be negligible. This was pointed out to me by Lieut.-Colonel T. C. Boyd, I.M.S., professor of chemistry in the Medical College, Calcutta. I suggest to manufacturers that they should put on the market hermetically sealed glass ampullae, each containing about 20 c.cm. of chemically pure glycerin. I should like to suggest further that the hygroscopic action of the glycerin might be augmented by the addition of anhydrous magnesium sulphate. Three grams of this salt can be added to 20 c.cm. of glycerin without making it too viscid. I have used this preparation recently on two cases of streptococcal infection of the uterus with very gratifying results. The magnesium sulphate is sterilized in a hot air sterilizer at 150° C. for one hour, and added to the glycerin before injection into the uterus.

The second difficulty is the method by which the glycerin is injected into the uterus. If the catheter or tube is passed into the uterus daily, the patient, who is very ill, is subjected to a good deal of disturbance: if the catheter is left *in situ*, so as not to disturb the patient daily, it is certain to slip out and the glycerin is injected next time merely into the vagina. It is suggested in *The Queen Charlotte's Practice of Obstetrics* that a piece of porous sponge tied to the catheter a little below the eye will keep the catheter in position. I would suggest that the difficulty could be best overcome by a specially made large-sized self-retaining catheter, the outer measurement of the tube being half an inch wide and the flanges on each side being three-fourths of an inch. This would be easily introduced and unlikely to slip out.

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Reports of Societies.

EARACHE.

A MEETING of the Medical Society of London was held on February 11th, when Dr. J. WALTER CARR, the president, paid a tribute of respect from the chair to the late Dr. de Havilland Hall, who was a Fellow of the Society for fifty-five years and its president in 1903.

Dr. H. MORELAND MCCREA introduced a discussion on earache. He said that earache, being a pain, must be considered under the classification of pains—namely, localized, as in otitis media or furunculosis; referred pain, due to lesion of the same nerve area; and transferred pain, of which one of the most striking examples in his experience was in a patient subject to attacks of angina, which always began with a violent earache, the pain being transferred to the ear by some unknown means, probably through interconnecting branches of the vagus. A case of otitis media might be one of the most serious things a surgeon had to undertake, and no stone should be left unturned in diagnosis until this condition had been definitely excluded. He emphasized strongly the need for prompt treatment of any acute suppurative inflammation of the middle ear, and the danger to the permanent hearing, perhaps even to life itself, if such measures were delayed. In differentiating furunculosis there was one helpful point which might be remembered, that the common organism in it was *Staphylococcus aureus*. Minor local causes of earache might be the presence of cerumen in the meatus, or an increase of atmospheric pressure due to blocking of the Eustachian tube by adenoids. The points in examination were: history; constitutional disturbance; condition of the drum, whether bulging or perforated, and accompanied or otherwise by discharge; temperature; state of the lymphatic glands and the bone; and deafness. If there was no local cause for earache, the next thing to do was to examine the regions from which the pain could be referred or transferred. The salivary glands could cause earache; as a referred pain it might be due to acute tonsillitis, and continue after enucleation of the tonsils; ulceration or erosion of the tongue, again, could bring about constant or intermittent intense pain in the ear. An aching tooth might also be the cause; intense ear pain might be induced by a buried wisdom tooth. Disease of the larynx could give rise to intense earache, which might be purely transferred pain. The possibility of the origin of the pain being an early cancer or tuberculous lesion in this area should not be disregarded.

Mr. HERBERT TILLEY said that earache was a very deceptive symptom in that the gravity of the causative lesion might have little proportion to the severity of the pain. A furuncle in the meatus, although not endangering life at all, might render life intolerable for three or four days, while an earache which was scarcely more than a bearable discomfort might be the only subjective symptom of retained sepsis in close proximity to the temporal meninges. Dealing with intrinsic causes, Mr. Tilley first touched on foreign bodies, such as a pea or some vegetable grain, in a child's ear, sometimes possible of expulsion by gentle syringing, otherwise, if impacted, requiring removal with a suitably curved probe or hook under a general anaesthetic. A not infrequent foreign body was a foul pledget of wool which the patient had forgotten to remove. Cerumen pressing against the tympanic membrane might cause earache, but more particularly vertigo. Furunculosis, due to staphylococcal inflammation of a hair follicle or sebaceous gland in the epidermic lining of the cartilaginous portion of the meatus, sometimes resulted in intolerable pain. With regard to the differentiation of this condition from mastoiditis Mr. Tilley suggested three points: the hearing would probably be normal in the case of furuncle, whereas in mastoiditis there was likely to be some damage to the middle-ear structures; the movement of the jaw or auricle would accentuate the pain in meatal inflammation, but hardly that caused by mastoiditis; and direct pressure on the oedematous area would not greatly increase the pain of a furuncle, but would accentuate that due to inflammation in the mastoid antrum or cells. Dealing with acute inflammation of the middle-ear cleft, which furnished the physician with most of his cases of severe earache, if the physician satisfied himself that acute inflammation of the intact tympanum was present he should, in the case of a child, make arrangements for a brief general anaesthesia in order that the tympanic membrane might be incised. In the adult local anaesthesia could be used. It was his firm conviction that once the tympanic membrane was acutely inflamed and uniformly congested paracentesis should be performed. A clean and free incision through the posterior half of the drumhead provided immediate drainage for inflammatory products from the tympanum, thereby saving the delicate mechanism of the middle ear from possibly irreparable damage, and perhaps also hindering a spread of infection to the mastoid antrum, its cells, or to important regions in the vicinity. The milder and fugitive forms of earache in children, Mr. Tilley added, should be taken as a note of warning by the thoughtful physician. They almost invariably implied a mild infection of the Eustachian tube and middle ear, and examination of the nasopharynx would frequently reveal that abnormal degree of lymphoid hypertrophy which was called adenoids. In chronic suppurative otorrhoea earache should be regarded as a symptom of arresting significance, because it meant that septic inflammatory products were retained under tension in the middle ear or on its adnexa. In these circumstances, and without the addition of any other local or general symptoms, one would be justified in adopting surgical measures for the free exposure and drainage of a septic focus. Earache might be complained

of in patients suffering from chronic non-suppurative inflammation of the middle-ear cleft which had given rise to the formation of cicatricial changes in the tympanum or of sclerosis of the mastoid bone. In such instances the earache was usually of a dull boring character, as compared with sharp pain of the more acute inflammatory types. With regard to referred earache, Mr. Tilley contented himself with a reference to earache caused by chronic or suppurative inflammation within the sphenoidal sinus and the regions in its neighbourhood.

Sir JAMES DUNDAS-GRANT said that disease in the tonsil was often the cause of earache, but sometimes, when both ear and tonsil showed signs of inflammation, it was difficult to decide which was the cause. If one could anaesthetize the tonsil and thereby remove the pain in the ear it was a reasonable possibility that the pain was a reflected one from the tonsil. In the examination of the ear of a small child it was useful to tilt the head and pull the floor of the meatus downwards (not upwards as in the adult) and backwards, which gave an astonishingly good view of the tympanic membrane.

Mr. THEODORE JUST referred to the curious prejudice in some quarters against the use by the aural surgeon of an electrical auroscope. He considered it wrong to teach the student to discount the use of electrical weapons in the examination of the ear, and he emphasized the need for the best illumination possible. He considered also as unjustified the prejudice against the opening up of the mastoid on suspicion of mastoiditis. After all, the danger of opening up a doubtful mastoid was no greater than that of opening up a doubtful appendix case, which was undertaken without any question.

Mr. HAMBLIN THOMAS said that sometimes in infants a minute streptococcal infection of the skin behind the ear was found, accompanied by a good deal of pain. Pain was also caused in the ear by the presence of wax which had been there for a long time and had come to exert a certain pressure, and the skin underneath it had become atrophic. Even after the wax was removed pain might continue for some time. In the treatment of the pain carbolic acid drops and glycerin were commonly given. This might relieve the pain for a few days, but after a time the carbolic acid removed the superficial layers of the epithelium, with consequent pain in the ear again. Some people were sensitive to the crystals of boric acid, which was often used in cleaning out ears. Short stabbing pains in the ear occurred in people with arterio-sclerosis and high blood pressure.

Mr. ERIC STEELER agreed with Mr. Tilley as to the importance of performing a paracentesis once the tympanic membrane was acutely inflamed. It was far safer to open the drum than to let it go on to spontaneous rupture.

Mr. TILLEY, replying to a question as to how often he had seen earache as a referred trouble from sphenoidal suppuration, said that he had only seen two cases in thirty years, but they were quite definite and unmistakable.

EARLY DIAGNOSIS IN SPINAL INJURIES.

AT a joint meeting of the War Section and the Section of Surgery of the Royal Society of Medicine on February 6th a discussion took place on the need for early diagnosis in the treatment of spinal injuries. Sir HOLBURT WARING presided.

Group-Captain H. V. WELLS, who spoke from the point of view of fractures due to aeroplane crashes, referred to those less obvious cases in which the body of a vertebra was fractured without any immediate or grave involvement of the spinal cord or spinal nerves. There were "missed" cases in which, weeks or months after the injury, a spinal curvature or a definite neuritis showing involvement of the spinal nerves was discovered. After an aeroplane accident, judged not to have been of a serious nature, the medical officer merely recording a bruising or straining of the muscles of the back, the patient might be rested in bed for a few days, treated by massage, and then sent back to his duty; then, weeks later, he would seek medical advice for shooting pains or inability properly to straighten his back, and a skiagram would disclose an undoubted fracture and damage beyond rectification except by extreme measures. Fractures of the upper part of the spine were brought about by the spine being forcibly bent upon itself, the head being forced forward upon the curved upper spine, when the position about the second or third dorsal vertebra probably received the maximum compression. Fractures of the lower region were brought about by the weight of the head and chest, supported on the lumbar spine at the moment of impact, being reinforced by the rebound transmitted through the lower limbs. The particular type of fracture concerned in that discussion was a compression fracture involving the vertebral body only. The obvious way to settle any doubt was to radiograph the spine in all such cases. But would the skiagram at this early period show anything definite? There was no appreciable displacement, the crushed vertebra had come back into position near to its normal outline, and although the bony outline might be a little suspicious, one was left still in doubt. The only things on which the medical officer could rely were the history of the accident (which gave some indication as to the likely damage); the persistence of pain, not in itself a sure guide; and the skiagram, which could give little help where there was no marked displacement. Many patients who had been involved in flying accidents had subsequently suffered for varying periods with definite pain in the lumbar region, with maximum tenderness located over one or other lumbar vertebrae, but *x*-ray examination failed to reveal any signs of a bony lesion. All these patients had subsequently recovered without any residual symptoms, and it was suggested that in these cases the lumbar vertebrae suffered from the effects of compression, with severe bruising, without actual fracture. Possibly severe compression might give rise to some lesion of the bone, with or without definite fracture, resulting in subsequent absorption of bony tissue. From the skiagram there appeared to be no guiding factor to enable the medical officer to say whether the lesion was minor or major. The right policy would seem to be that any patient who complained of pain in the back after a serious accident should invariably be treated as a potential case of fracture, but to lay this down as a hard-and-fast rule would involve the loss of a considerable number of man-hours purely as a matter of safeguard.

Sir PERCY SARGENT said that since the war the cases of spinal injury which he had seen had been mostly due to two common causes—namely, colliery accidents and hunting accidents. In the former the injury was usually caused by the fall of a mass of coal or stone on the back while the man was in a stooping posture; in hunting accidents hyperflexion of the spine probably played the chief part. When the force was extreme, fracture resulted. He limited his remarks, however, to those cases in which no conspicuous damage was done, though the patient might suffer considerable disability later on. The great necessity was to make up one's mind at an early date as to the right line of treatment in these cases of apparently minor injury. Diagnosis and prognosis were notoriously difficult in such cases, and it was only wise to impose upon these patients a probationary period, not necessarily of rest, certainly not of rest alone, but of observation and treatment. Systematic neurological examination should always be made and repeated from time to time in case any physical signs turned up at a later period. A good skiagram, lateral as well as antero-posterior, should also be made. The spine which appeared normal radiographically immediately after the accident might, months afterwards, show atrophy and collapse of one or more vertebral bodies. It had been suggested—and was possible—that in these cases some early operative measure might legitimately be employed, but in most the cure of the pain and stiffness and the arrest of the oncoming deformity could be obtained by proper treatment of the muscles. The spine required support from its ligaments and muscles, and by a proper treatment of the muscles he meant such measures as would improve their tone, and perhaps their bulk, but would certainly enable them to deal with the extra strain thrown upon them in consequence of the spinal damage. Such treatment might include massage—though he had no opinion as to that, beyond its ability to improve nutrition—and also electrical stimulation, by which he meant the production of rhythmically graduated contractions, not the painful tetanic spasm brought about by the strong faradic current.

This was a means of toning up the muscles and improving their supporting power. If the contractions were systematically and rhythmically applied the whole treatment had a very far-reaching effect on the condition of the soft parts, the bones, and everything else. It had to be borne in mind in spinal injury, even of a slight degree, that symptoms of pressure on the cord might occur a long time after an injury. Many victims of aeroplane accidents, who showed no obvious signs of spinal injury at the time, might produce evidence of serious later effects such as collapse of vertebral bodies and secondary spinal cord symptoms. The effects on the spinal column might be prevented by proper treatment of the damaged muscles. Possible late effects upon the spinal cord and nerves could not be foreseen, and must be so rare that in this particular connexion they might be disregarded, but with this exception, that patients who showed slight or even transient signs of cord injury must be very carefully watched, in view of the likely development of serious symptoms at a later date.

Air Vice-Marshal DAVID MUNRO remarked that he had never seen a psychological factor in the cases of spinal injury consequent upon flying crashes. He also mentioned that a senior officer in the Air Force got a serious injury in 1915, but had served ever since then without complaint, yet he was now in the hands of an osteopath, who declared that he had symptoms of spinal damage. What was the pathology of these delayed cases? Why did an injury take so long to develop? The only suggestion he had heard was that there was extravasation into the cancellous tissue of the bone.

Surgeon Vice-Admiral A. GASKELL said that the fractured spine, consequent upon sacks of coal falling upon the back, was not uncommon in the navy. The point was how to assess the injury to the spinal column. It was important always to take skiagrams, and here he mentioned that naval hospitals were very fortunate in their *x*-ray equipment. An autopsy in all fatal air crashes would be of value in studying injuries to the spinal column.

Major J. M. WEDDELL said that in these missed compression fractures very often the trauma was relatively minor. In the late case the man would come up complaining of pain in the back, which was definite and increased by movement. The man held his back rigid, and there was stiffness with possible deformity. If there was not deformity there was still very often irregularity of the spinous processes. The skiagram in the typical case showed a deformed or wedge-shaped vertebra. He did not know at what period localized hyperaesthesia arose; if early it would be a helpful diagnostic symptom.

Dr. BERTRAM SHIRES commented on the fact that in no case brought forward, after a skiagram in the early stages had shown no fracture, had a fracture been discovered. In the late cases it was quite possible that had the spine been *x*-rayed immediately after the accident the fracture would have been shown. Radiological evidence of fracture might be very slight, but it was recognizable, provided the lateral view were taken.

Dr. MORTON SMART had been impressed by the importance of the muscle factor in keeping the body erect. When an injury to the spine occurred the muscles, which were the first line of defence, must give way, with the result that in all fractures of the spine there was serious injury to the muscles and possibly to the ligaments. In the mild cases of compression of the vertebral body there was no question that if put to bed for a time and kept at rest they made good progress to recovery, but in a short time after getting up a variety of pains in the back was experienced, some of them being referred to the definite area, and some to other parts of the body, the latter being due to muscle strain in trying to take off the pressure from the directly affected part. The muscles in the course of repair became adherent to neighbouring tissues, and pain in the late case was often due to these adhesions. The successes of the osteopath were hereby explained, for he by violent measures loosened the adhesions, and the patients thereupon lost their pain, though the osteopath claimed that the cause was a bone out of position.

Mr. CECIL WAKELEY referred to cases in which the skiagram taken on one side showed fissuring of the vertebra, but nothing of the kind on the other side. Mr. PATERSON ROSS suggested that the primary factor in producing wasting and atrophy was pain. Painful joints would always result in wasting and atrophy of the surrounding muscles. It might be that the severe pain which resulted from the injury produced a great deal of atrophy, leading eventually, with loss of support, to the wedge-shaped vertebrae. Commander PRISTON spoke on the psychological difference noted as between the victims of hunting and of industrial accidents. The former were persons who were accustomed to exercise their muscles, and were not afraid of a little pain, and so broke down their adhesions. In other cases compensation came in and perhaps to some extent destroyed incentive. Sir HOLBURT WARING had seen a number of these injuries which, being due to torn ligaments and adhesions following them, were specially amenable to the so-called bone-setter.

Sir PERCY SARGENT, in reply, said that, as regards the pathology of crushed fractures, the actual condition of the bones, and the reason why they were collapsed, were still unknown. There were two or three *post-mortem* examinations of crushed fractures at an early stage where nothing had been found but the crumbling of cancellous tissue of the bone with haemorrhage into it. It was not explained why such crumbling appeared so long after the original injury.

THE INJECTION TREATMENT OF VARICOSE VEINS.

AT a meeting of the Liverpool Medical Institution on January 10th a discussion on the injection treatment of varicose veins was opened by Dr. STUART MCAUSLAND.

Dr. McAusland gave an historical review of the Continental and British literature, and cited deficient endocrine stimulation as a primary etiological factor in the formation of varicose veins. From the histological aspect he maintained that the process of vein obliteration by injection was essentially a chemically produced irritation of the endothelium, which caused the formation of a firm clot. This condition, together with the fact, radiographically confirmed, of the downward circulation in varicose veins, and the innumerable clinical successes of Sicard and others without accident, negatived all danger of embolus. Having discussed indications and contraindications he described the technique, and reported results of his own cases, together with after-effects. He concluded that salicylate of soda, and quinine with urethane, were the substances of choice; that patients should rest the limb for twenty minutes after injection; and that the advantages of the method were exactly those of haemorrhoid injections. The treatment was essentially ambulatory, nearly painless, and economically cheap; it was more successful than operative excision, smaller radicles being reached and recurrence being less liable. The treatment, moreover, avoided the risks of general anaesthesia and post-operative embolus.

Mr. H. F. WOOLFENDEN emphasized the apparent safety of the injection treatment as regards the risks of pulmonary embolus due to the firm character of the thrombus formed, the thrombosis being secondary to the chemical endophlebitis and resembling the tough fibrinous thrombus met with in aneurysm. The convenience of the treatment from the patient's point of view was undoubted, and the permanence of the cure seemed to be as good, if not better, than after operation. There were certain disadvantages of the treatment to be considered. The first was pain, which at times occurred; it was sometimes met with at the time of injection when sodium salicylate was used, but for some days afterwards patients complained at times of pain and tenderness in the leg. This might possibly be due to a part of the injection being outside the vein, or to a leak back at the puncture hole in the vein, but it also occurred when the injection was undoubtedly in the vein, and was due to an excessive reaction causing periphlebitis. This excessive reaction had four possible causes: (1) the solution being too strong, (2) stagnation in the vein, (3) thinness of the vein wall, and (4) idiosyncrasy of the vein. There was also the possibility of errors in technique causing slough formation by the injection outside the vein. This should not occur, but unfortunately it did occasionally happen.

The advantages and disadvantages of quinine, sodium salicylate, and sodium chloride were discussed. Quinine and urethane were most suitable for the peripheral injection of small and moderate-sized veins, but sodium salicylate and sodium chloride given by Colt's technique were excellent for large varices involving the long saphenous system, on account of the quickness of the cure. The importance of bandaging the leg after injection was pointed out so that the formation of large bulky clots could be avoided.

Mr. J. B. OLDHAM said that before recommending any new form of treatment it was necessary that it should be safe and efficacious. He was certain that these postulates were fulfilled by the injection treatment of varicose veins. On the question of safety the sceptics advanced as objections the risk of general toxic symptoms, of local complications, and of pulmonary embolism. Several examples of severe quininism, following excessive doses, were mentioned, but the speaker found that all these risks could be obviated by giving a very small initial dose (1/2 to 1 c.cm.) to test the patient's susceptibility; by not giving more than 7 to 8 c.cm. at one sitting; and by keeping the limb at rest for half an hour after injection. Mention was made of Sicard's experimental proof that solutions injected in varices remained there if the limb was kept at rest, but quickly entered the general circulation on active movement; a similar personal observation following injection of methylene blue was related. Local necrosis was almost always the result of the solution entering the subcutaneous tissues—an error in technique—but occasionally, as Mr. Woolfenden had mentioned, necrosis followed what apparently had been a perfect injection. Embolism was an ever-present theoretical possibility, but the practical clinical evidence of many hundreds of thousands of injections without a fatality—no case of fatal embolism following a sodium salicylate or quinine injection has been reported—was more than sufficient to outweigh this hypothetical danger. In spite of the unlikelihood of embolism these precautions were advocated: (1) the patient should not move for half an hour after injection; (2) absolutely aseptic technique; (3) if possible, avoidance of excessive muscular activity for three or four weeks after completion of treatment. The advantages over the operative methods were enumerated, and it was pointed out that one fatal case of embolism happened in every 700 or 800 major operations. The speaker thought that a tourniquet was helpful, and that injections should be given with the patient lying down; he mentioned that quite independently he had come to the same conclusion as Mr. Woolfenden as to the great advantages of supporting the veins with a bandage for a few days after injection. In cases with a positive Trendelenburg sign good results could often be obtained by a single injection made as near the proximal end as possible, the consequent fibrosis being equivalent to the old Trendelenburg operation, and protecting the distal veins from the passive downward reflux of blood.

HAEMORRHAGE AFTER THE MENOPAUSE.

AT a meeting of the North of England Obstetrical and Gynaecological Society on January 25th, with the president, Dr. GORDON FITZGERALD (Manchester), in the chair, Dr. S. B. HERD (Liverpool) read a paper on post-menopausal haemorrhage.

Dr. Herd said he had recently been confronted with several cases in which haemorrhage after the menopause had been the only symptom and there had been no gross physical signs. One patient was a single woman with a recent history of slight bleeding considerably after the menopause; no pelvic abnormality could be detected on ordinary examination. Preliminary examination under anaesthesia with diagnostic curetting had been objected to by her private doctor for three reasons: entailment of the risk of two anaesthetizations; the danger of missing an early growth even after careful scraping; and the possibility of disseminating growth, if present, by manipulation. On investigating this case Dr. Herd had found a four-inch uterine cavity and slight irregularity at the fundus; friable material had been removed by the curette, so he had performed total hysterectomy for what had proved to be an early carcinoma of the body of the uterus. On investigating the literature he had found many conflicting views. Dougal had classified these cases in two groups—namely, those with and those without gross physical signs. Muret in 1927 had analysed 312 cases; he had found 25 per cent. to be malignant, the cervix and corpus uteri being equally affected. In the latter cases none had been obvious before curetting. Muret had also noted that 19 per cent. of his cases were due to ulceration associated with prolapse, and that 8 per cent. were due to polypi and senile endometritis. In only three cases had Muret found no positive result after careful examination and curettage. Lahen had described four cases of post-menopausal bleeding where operation had revealed primary ovarian carcinoma and where the endometrium was of the active pre-menopausal type. He had suggested that the malignant growth had in some way revived ovarian function. In two articles in the *British Medical Journal* in 1926 and 1927 Fletcher Shaw had discussed post-menopausal bleeding and had stated that malignant degeneration in fibroids might be overlooked by curettage. Russell Andrews had mentioned a case of post-menopausal bleeding due to rupture of a vein in the capsule of a fibroid. Wallin, in the *Journal of the American Medical Association*, had reported a case due to hypothyroidism.

Dr. Herd said he had analysed 92 cases of uterine haemorrhage occurring after the menopause, and had found the following conditions:

Carcinoma cervicis	40 (43%)
Adenomatous polypi	15 (16%)
Carcinoma corporis uteri	12 (13%)
Fibromyoma uteri	6 (7%)
Pyometra	4
Simple ovarian cyst	3
Cervical erosion	3
Sarcoma corporis uteri	3
Prolapse with pessary	2
Twisted ovarian cyst	2
Primary ovarian carcinoma	1
Secondary ovarian carcinoma	1

In all these cases some local cause had been found on careful examination. In 72 cases there had been obvious physical signs, but in 20 cases the cause had not been so apparent. There was nothing outstanding about the cases of cervical carcinoma except that only three had been inoperable. This high operability rate was in all probability due to the fact that the growth had been of a slow-growing type. Of the 15 cases of adenomatous polypi none had presented difficulty in diagnosis, and in no instance had abdominal section been found necessary. Submucous tumours had been present in all 6 cases of fibromyomata, and in 2 of these cases necrobiotic change had been found. The site of haemorrhage in all had been in the capsule of the tumour. In those cases where haemorrhage had been due to tumours in the vicinity of the uterus a mechanical cause had been suggested by two cases; in the first a cyst adenoma with twisted pedicle had been found and its removal had been followed by cessation of bleeding; in the second, after removal of a primary ovarian carcinoma the bleeding ceased and had not since recurred. In conclusion Dr. Herd emphasized the fact that in all cases in which the diagnosis had not been obvious and in which malignancy had been subsequently found, this diagnosis of malignancy had always been established by curetting, and in no malignant case had the diagnosis been missed by the curette.

The PRESIDENT said that personally in such cases he was always particularly careful to exclude carcinoma of the cervix in parous women, and carcinoma of the body of the uterus in nulliparous women. He thought that senile endometritis was very rare; it was a diagnosis he always avoided. He had recently seen a case of haemorrhage of six months' duration in a woman, aged 66, twenty-six years after the menopause. No abnormality had been disclosed on curetting the cervix and body of the uterus, but, not being satisfied, he had performed laparotomy and had found a small primary carcinoma of the Fallopian tube.

Dr. ARCHIBALD DONALD (Manchester) suggested that more stress might have been laid on the question of polypi as

a cause of post-menopausal haemorrhage. He thought that the proportion of fibromyomata would have been larger if fibroid polypi had been included in this group. Fibromyomata frequently caused bleeding after the menopause owing to atrophy of the capsule and the consequent liability of the vessels to rupture. He had seen very few cases of senile endometritis, and most of these were really cases of senile pyometra. When post-menopausal bleeding was associated with an ovarian cyst and a twisted pedicle he thought the haemorrhage was due to back pressure.

Dr. J. W. BRIDE (Manchester) recalled a case in a woman, aged 60, who had been married six months. Examination had revealed a polypus growing from the cervix and nothing further had been found on curettage. The bleeding continued, and hysterectomy, performed later, revealed carcinoma of the body of the uterus.

Dr. FLETCHER SHAW (Manchester) thought that many medical practitioners were still apt to overlook the seriousness of post-menopausal bleeding. He had seen a case recently where a urethral caruncle had been present; he had thought that this was the cause of the bleeding. However, he had curetted the uterine cavity, as was his custom in such cases, and had found carcinoma in the body of the uterus. He was rather at a loss to understand why the endometrium should suddenly become rejuvenated and produce polypi. He was surprised at the small proportion of fibromyomata in Dr. Herd's figures, as he had seen many cases of post-menopausal haemorrhage following changes in fibroids.

Dr. F. H. LACEY (Manchester) emphasized the necessity for curetting in all these cases. It was dangerous to assume that a caruncle or polypus, if present, was the cause of the haemorrhage. He had known cases where, on this assumption, carcinoma of the body of the uterus had been missed. Dr. LEITH MURRAY (Liverpool) agreed with Dr. Herd in regard to the low proportion of fibromyomata causing post-menopausal bleeding. In his own series he had found that only 3 per cent. of cases were due to uncomplicated fibromyomata. He was strongly of opinion that much could be done to bring the danger of such bleeding to the notice of the public by instruction of midwives. Dr. KING (Sheffield) disagreed with curetting in these cases. He believed in performing vaginal hysterectomy at once. He was also of opinion that post-menopausal polypi were evidence of a pre-malignant condition. Dr. GOUGH (Leeds) did not consider that in the cases due to twisting of the pedicle of an ovarian cyst the cause of the bleeding was mechanical. He had seen haemorrhage in very small ovarian tumours, and thought it was possibly due to a hormone produced in the connective tissue of the ovary, as no lutein tissue was present. Dr. HERD, in reply, said that he also thought there must be some other cause than the mechanical theory in such cases.

Spontaneous Uterine Rupture.

Dr. J. W. BRIDE (Manchester) showed a specimen of spontaneous rupture of the uterus about the fourth month of pregnancy. The patient was a primigravida, married four and a half years, and very anxious to have a child. There was no question of previous operation at any time, or of accident. The specimen consisted of the uterus removed by subtotal hysterectomy and enlarged to the size of a four or five months' pregnancy, and behind and above the left cornu could be seen a large gaping tear, through which protruded placental tissue, the head of the foetus being distinctly seen and felt through the opening. Part of the intact bag of membranes could be seen protruding through the lower pole of the uterus at the level of the internal os. There were some small fibroids in the uterine wall, which measured one-sixteenth to one-eighth of an inch. The symptoms had been those of rupture of an ectopic pregnancy, the patient being critically ill at the time of operation, but making eventually a good recovery. Dr. Bride had come to the conclusion that it was one of those rare cases of pregnancy in an infantile uterus. At the time of operation the uterine walls were uniformly transparent and very thin. There did not appear to be any question of cornual pregnancy or any evidence of hydatidiform disease.

Dr. ARCHIBALD DONALD (Manchester) asked whether the patient had ever been examined bimanually prior to the occurrence of pregnancy, and if so, whether or not the uterus had been found to be of the infantile type. He remembered a case where pregnancy had occurred in an infantile uterus, and where, at the fourth month, the uterine wall, on palpation, had seemed extremely thin. In spite of this the patient had subsequently gone through a normal confinement at full term. Dr. FLETCHER SHAW (Manchester) suggested that the rupture might have been due to a very rare condition—namely, acute sacculation of the uterus during pregnancy. He had had a case of this kind. In Dr. Bride's case there was no history of acute pain at the time when sacculation would have taken place. Dr. LEITH MURRAY (Liverpool) suggested that the presence of leucocytic infiltration of the uterine wall showed that the rupture might have been due to an inflammatory condition. Dr. KING (Sheffield) mentioned a somewhat similar case he had seen in a multipara where spontaneous and fatal rupture had occurred at the sixth month. In the previous confinement the puerperium had been morbid, and on the ninth day, following a secondary post-partum haemorrhage, she had passed what appeared to be a piece of placenta. Microscopic examination had shown it to be a piece of uterine muscle. He suggested that in his case there had been, after the first confinement, haemorrhage into the uterine wall analogous to accidental haemorrhage; this had resulted in a uterine scar, which had ruptured during the next pregnancy.

Dr. BRIDE, in reply, said that his patient had never been examined bimanually before becoming pregnant, so he could not say whether the uterus had been infantile in type. At the time of operation the whole uterine wall was very thin and almost transparent.

WORK OF THE MACKENZIE INSTITUTE.

AT a meeting of the London Association of the Medical Women's Federation, held at the British Medical Association House on January 22nd, with the president, Miss F. HUXLEY, in the chair, a paper was read by Dr. DOROTHY DOUGLAS on the working of the Mackenzie Institute for Clinical Research at St. Andrews.

After briefly outlining the foundation of the Institute, and commenting on the life and work of its great originator, Dr. Douglas went on to explain the aims of the organization. These were principally: (1) to obtain a large series of accurate life-histories of the health of individuals whose circumstances, habits, and, if possible, antecedents were known; and (2) by an intensive and minute study of cases of disease, especially in its early stages, to arrive at a better knowledge of the meaning of symptoms, as opposed to physical signs. Disease states might be divided into two groups: first, those in which there were symptoms only, without physical signs, and therefore only disorder of function; secondly, those in which physical signs could be elicited, and therefore structural change might be postulated. It was always Mackenzie's aim, by an early recognition of the first group, to prevent the occurrence of the second. St. Andrews was chosen as the site for such a research chiefly because it was a very small and somewhat remote town. This made it comparatively easy to follow up patients and to discover facts about their families and circumstances; moreover, it was there possible to keep in touch with individuals over a large number of years, since the population was more or less stationary. For much the same reasons it was decided to staff the Institute entirely from general practitioners of the town, since they would naturally be the first to see the earliest symptoms of disorder. It had since been found practicable to employ, in addition, a full-time pathologist and bacteriologist, a radiologist, and a paediatrist. The services of the general practitioners were entirely voluntary, and the prevalent feeling locally, both among the doctors and the general public, was that the work, besides being part of a most necessary research, acted as a stimulus to thought and discussion, and much increased the interest of the routine of general practice. Many important papers had been published by the Institute since its foundation, and a comprehensive mass of material in the shape of accurate clinical notes of a large number of cases of special interest had been gathered together. This material was available to investigators following out a particular symptom or disease. In conclusion, Dr. Douglas expressed the hope that such unique opportunities for clinical research as were offered at the Institute would be utilized to the full.

Reviews.

VACCINATION WITH LIVING TUBERCLE BACILLI.

PROFESSOR ALBERTO ASCOLI of Milan, in a recent work on vaccination against tuberculosis with living tubercle bacilli,[1] makes an interesting contribution to the problems raised by Calmette and Guérin with their B.C.G. vaccine. Starting with a review of previous work in the immunization of cattle with human tubercle bacilli, in which a tribute is paid to the pioneer work of Angelo Maffuci in this field, and a useful summary is given of the classical experiments of R. Koch, Behring, and others, Ascoli passes on to his own experiments, which are described in considerable detail.

His first experiment was carried out at Stradella in November, 1926, four calves, vaccinated with B.C.G. between April and September, 1925, and three non-vaccinated "controls" each being tested by the intravenous inoculation of 5 mg. of the same virulent culture of bovine tubercle bacilli (Vallée) as had been used by Calmette in his experiments. Unfortunately, septic pneumonia had been prevalent in the stalls in which these calves were accommodated, and several of them had suffered from transitory attacks, though they appeared to have quite recovered at the time of the test inoculation. In the result, all except one vaccinated and one control animal died of septic pneumonia within three weeks of the test dose, a latent pneumonic infection being, as Ascoli believes, reactivated by the shock of the intravenous inoculation. It was found at necropsy that tuberculous lesions coexisted with septic pneumonia in the lungs of the non-vaccinated "controls," whereas the lungs of the vaccinated calves, while pneumonic, were free from tuberculous foci. In the course of bacteriological examinations *B. bovisepticus* was isolated from all these animals. Of the survivors, the control was killed in May, 1927, and the vaccinated calf in January, 1928. Both showed tuberculous lesions, the latter having a subacute tuberculous meningitis.

The Stradella experiment, in fact, was a failure, though it served to emphasize a point to which Ascoli attaches importance—the tendency for inoculations of tubercle bacilli to wake up latent foci of intercurrent bacterial diseases. A more successful attempt was made at Cascinazza in April, 1926, when two vaccinated and two non-vaccinated calves were tested with intravenous inoculations of 5 milligrams of a virulent bovine strain isolated by Ascoli himself. In this experiment both the "controls" went rapidly to the bad, and died early in May, 1926, of generalized tuberculosis. The vaccinated calves, however, remained for many months in good health. The photographs and temperature records illustrating this experiment are striking. In August, 1927, however, one of the vaccinated animals developed cerebral symptoms, was slaughtered, and was found at autopsy to have tuberculous encephalitis, though the lungs were free from visible tubercles. An emulsion of lung tissue, however, inoculated into a guinea-pig led to tuberculosis. The other was still fat and healthy in January, 1928, when it was slaughtered. At autopsy the tracheo-bronchial glands were found enlarged and caseous, and emulsions of their contents, as well as of lung tissue, reproduced tuberculosis in guinea-pigs. The vaccinated animals, then, were not rendered absolutely immune to tuberculosis, but it is clear that they were made "refractory" to a very heavy test infection, and were much more resistant than the controls. Further experiments with calves, in which the test was exposure to close contact with infected cattle, gave results which, in spite of interference through actinomycosis as an intercurrent infection, were, on the whole, in favour of the vaccine. Experiments in goats failed, in one series, through the test dose being too large, and were successful in a further experiment with a smaller test dose, in which, however, only one vaccinated and one control animal were used. In swine good results followed B.C.G. vaccination where the vaccine was given subcutaneously, but experiments with oral administration of the vaccine failed.

On the whole the experiments, though on a small scale, gave results comparable with those obtained in this country and elsewhere. They proved that B.C.G., like other living strains of tubercle bacilli, leads, when given in appropriate doses, to a considerable increase of resistance against subsequent heavy infection with virulent cultures. On the other hand, the experiments suggest that the B.C.G. strain, when grown and used according to the method of Calmette, is innocuous for test animals. Lesions it does produce; and Ascoli gets nearer the truth than Calmette when, instead of asserting that B.C.G. is "non-tuberculigenic," he speaks of it as "tuberculigenic but non-tuberculosigenic." Experiments in the pre-immunization of infants were carried out on a small scale by several medical practitioners working under the general direction of Ascoli himself. The observations, though small in number, are well reported, and it is of interest to note, in several of the x-ray photographs reproduced with the text, that vaccinated children, regarded as fairly healthy in other respects, showed definite lung lesions. Out of about 165 children followed up, 18 appear to have died, one admittedly from tuberculosis and many from catarrhal enteritis. Altogether, in spite of the fact that Ascoli regards them as favourable, these tests on infants do not seem to the reviewer to be very convincing. In fact, while the author concludes in favour of B.C.G. vaccine, the impression left on the mind after perusal of his book is that further work is still necessary in several directions before finality can be reached.

The more one works with B.C.G., and the more one reads of the work of others, the more difficult does it appear either to prove or disprove the claims made for this vaccine by Calmette and his supporters. As to the power to evoke increased resistance in animals which B.C.G. possesses, in common with other strains of tubercle bacilli, when correctly used in appropriate doses, this is established beyond doubt—as was, indeed, to be expected. But whether the oral administration of "safe" doses of B.C.G. to infants is of any use as a prophylactic remains to be proved. Greenwood has shown that the French statistics so far produced are unsatisfactory, but this is no proof that B.C.G. is inefficient. It is clear that further and better tests are desirable. As Ascoli suggests, however, the employment of B.C.G. should be confined to infants in close contact with infected parents or other infected persons. Its use for infants *not* known to be exposed to the immediate risk of infection cannot be regarded as advisable at the present time, and is calculated to lead to further confusion in attempts to evaluate the vaccine by statistical methods.

We have received also a copy of the authorized French translation of Professor Ascoli's book. This, like the original work, is published in Milan.[2]

TONSILS AND ADENOIDS.

DR. IRWIN MOORE has embodied in one volume, under the title *The Tonsils and Adenoids and their Diseases*,[3] a number of papers which he has contributed to various medical journals during recent years, dealing with the important subject of enlarged or diseased tonsils and adenoids—their menace to health, the operative technique for their removal, and the control of haemorrhage, during and after removal.

The most important chapter, and perhaps the one that will be read with the greatest interest at the present time, is that dealing with haemorrhage following the surgical removal of the tonsils and its treatment. Ten years ago the author drew the serious attention of the profession to the frequency with which haemorrhage followed the operation, and expressed surprise at the casual way in which operations upon the tonsils were being performed, regardless of heavy loss of blood, and, in the majority of cases,

[1] *La Vaccinazione Antitubercolare con Bacilli Viri Negli Animali e Nell'Uomo.* Alberto Ascoli. Milano: Istituto Editoriale Cisalpino. 1928. (6¼ × 9¼, pp. 421; 100 figures. L.50.)

[2] *La Vaccination Antituberculeuse avec les Bacilles Vivants chez les Animaux et chez l'Homme.* Par Alberto Ascoli. Édition française réduite (par suppression des protocoles d'expériences, des clichés et des rapports détaillés) par le Dr. M. Cayrel. Milano: Istituto Editoriale Cisalpino. 1928.

[3] *The Tonsils and Adenoids and their Diseases.* By Irwin Moore, M.B., C.M.Ed. London: W. Heinemann (Medical Books) Ltd. 1928. (Demy 8vo, pp. ix + 395; 107 figures. 21s. net.)

without any steps being taken to control the bleeding at the time of the operation, with the idea that it would sooner or later cease of its own accord.

When the British Medical Association met at Newcastle-upon-Tyne in July, 1921, the meeting of the Section of Oto-Rhino-Laryngology, under the presidency of the late Dr. William Hill, was largely devoted to papers (*British Medical Journal*, 1921, vol. ii, pp. 431–446), and discussions dealing with "Problems presented by haemorrhage following operations on the tonsils." Dr. Irwin Moore, acknowledging the service those papers have been to him, observes that they give a complete and up-to-date résumé of the subject, and represent an accumulation of information and detail not dealt with in the usual textbooks, and obtained only by much labour in extensive search into the literature. The chapter on haemorrhage occupies one-fifth of the volume, an amount of space not out of proportion to the importance of the subject. A perusal of the chapter at once disposes of the optimistic view held by some that the operations as performed to-day are trivial ones. It having been shown that the operation is not entirely free from alarming and sometimes dangerous results, the question naturally arises for careful consideration what are the "indications for, and result of treatment of, chronic tonsillitis." In 1924 (*British Medical Journal*, 1924, vol. ii, pp. 804–813), at the meeting of the British Medical Association at Bradford, the Section of Laryngology and Otology chose that subject for discussion. Dr. Irwin Moore deals with the question in a separate chapter entitled "The tonsils as a source of focal infection in systemic diseases and the results obtained by tonsillectomy," and acknowledges considerable service derived from the opening paper at that meeting in revising this chapter. The methods for the surgical removal of the tonsils are fully described and illustrated. The treatment of enlarged or diseased tonsils in cases in which surgical procedures are contraindicated is a chapter in itself.

A remarkable feature of the book, and one that must enhance its value as a work of reference, is the mass of references compiled in alphabetical order at the end of each chapter. The author has achieved his purpose to produce in a monograph the accumulation and concentration of the present-day knowledge of the tonsils and the part they play in health and disease.

SURGICAL DIAGNOSIS IN TABULAR OUTLINE.

THE translation by Dr. BORTZ of Philadelphia of the fourth German edition of the work of Dr. CEMACH of Vienna is the first appearance of the book[4] in an English dress, as Dr. JOHN B. DEAVER tells us in an introductory note. In the translator's foreword we are told that Dr. Bortz has had the help of other specialists in its production, and that he has added to the information provided in the last German edition. We think that Dr. Bortz is justified in his statement that "the author has furnished an exceptional amount of useful information in an easily accessible form." The general plan of the book is that a plate representing a number of diseased conditions is followed by a large folding table, on which, in a number of columns and compartments, are set forth the nomenclature and varieties of the conditions dealt with, their history and etiology, symptoms, situation, the results of examinations, and the diagnosis. There are 129 such plates and over one hundred tables, but as most tables are equivalent to two pages, the typed matter is equivalent to some two hundred pages.

Such a method of providing information has its advantages if its use is made only a preliminary to a further study of the subject in monographs or textbooks. A reference to these tables may serve to remind the practitioner who consults them of the existence of some condition that might otherwise have escaped him. For information as to treatment he must, of course, look elsewhere.

Despite the size of this book and its wealth of illustrations, there are some lacunae in its scope and some conditions that are barely mentioned, such as Dupuytren's contraction of the palmar fascia. For example, we have failed to find any references to certain not uncommon congenital defects of the skeleton, such as so-called intra-uterine amputation, defect of tibia or radius, etc., although congenital club-foot and congenital dislocation of the hip are represented. Gastric ulcer, Legge's disease of the hip, and cystic bone disease are also unrepresented. We say advisedly "we have failed to find," because the index is singularly meagre for such a work, and although we have spent much time in turning over the pages, we may have missed some small references, such as that devoted to Dupuytren's contraction. The section on injuries of the spine is very superficial and gives little help in the diagnosis, say, of compression fracture of a lumbar vertebra, which is not uncommon and is very important industrially. The illustrations vary in merit. Some of the *x*-ray pictures are obscure, but others are good. We think that it is a mistake to represent diseases such as tumours by cases at these very advanced stages. It is probably for help in the early stages that the practitioner will turn to this book, and he will get little assistance from contemplating pictures of fungating tumours.

The outside cover of this volume bears the words "For desk use." Certainly no one would think of trying to carry it in a pocket, for it weighs four pounds, and its size has already been indicated. It would be unkind to suppose that the practitioner is meant to look up the diagnosis while the patient waits. To the letterpress is appended a copious bibliography of works in German and in English in separate paragraphs.

[4] *Surgical Diagnosis in Tabular Outline.* By Dr. A. J. Cemach, Vienna. Authorized translation with additions and notes by Edward L. Bortz, M.D., with an introduction by John B. Deaver, M.D. Philadelphia: F. A. Davis Company. 1928. (7 × 11; 129 plates; 109 tables. 12 dollars net.)

DISORDERS OF THE SYMPATHETIC-AUTONOMIC SYSTEM.

THE first edition of Dr. Guillaume's *Vagotonies, Sympathicotonies, Neurotonies*[5] was immediately successful, and the second edition is likely to be equally so. It has undergone thorough revision, but has preserved all the characteristic features of its predecessor. Much new matter has been included, and, in particular, there are additional chapters, one of which describes the various changes in the blood found in cases of disorder of the vegetative nervous system, and another the psychical concomitants of vegetative nervous system disturbance. With regard to the latter, Dr. Guillaume points out that signs of such disturbance are rarely found in the major psychoses, though in the psychoneurotic states they are relatively frequent. This work is a study of the dysfunction of the sympathetic-autonomic system, chiefly from a clinical point of view; but etiological and therapeutic considerations are not neglected. The classification adopted by the author is essentially clinical. The three conditions which give the book its title are fully described. Under the heading of neurotonia, Dr. Guillaume discusses the peculiar instability of the tonus of the organs subject to the control of the vegetative nervous system, and, in particular, their excessive and violent response to all manner of stimuli. He describes also, under the heading "neurotonic alternante," the condition of successive phases of vagotonia and sympathicotonia. The passages devoted to the differential diagnosis of the many morbid states of the vegetative system are especially to be commended. Numerous hints are given as to the technique of eliciting the various reflexes (oculo-cardiac, etc.). There are several helpful diagrams, many references throughout the text to the findings of other workers in this field, and a voluminous bibliography.

[5] *Vagotonies, Sympathicotonies, Neurotonies.* Par A. C. Guillaume. Deuxième édition, entièrement refondue. Paris: Masson et Cie. 1928. (5½×8½, pp. xxiv+552; 19 figures. 40 fr. sans majoration.)

A NEW HYPOTHESIS OF LIFE.

MRS. AUGUSTA GASKELL, who is introduced by KARL T. COMPTON, professor of physics at Princeton, and RAYMOND PEARL, professor of biology at the Johns Hopkins University, has attacked the great problem *What is Life?*[6] Her first sponsor says that her discussion of modern atomic physics is accurate, well balanced, and worth reading for its own

[6] *What is Life?* By Augusta Gaskell. Introductions by Karl T. Compton and Raymond Pearl. London: Baillière, Tindall and Cox. 1928. (Med. 8vo, pp. 324. 16s. net.)

sake, and that her fundamental assumption must be admitted as possible. Professor Pearl somewhat guardedly gives his blessing by saying that her hypothesis has the advantage over others in that it is capable of experimental proof (though this is admittedly not easy to attain); that her book is free from "hedging" and "alibis carefully made ready in advance"; and that her discussion of various biological problems, particularly of evolution, have a refreshing novelty and shrewdness. As the problem is one to daunt the bravest of men and even of women, it is not surprising that the professors of physics and biology, who are quoted in the text, have been called in as accessories. Mrs. Gaskell writes modestly, in good English, and obviously with the advantage of wide access to the literature of the sciences concerned. Her hypothesis, based on atomic physics, is that the protons and electrons, besides forming by their various known combinations the ninety-two kinds of atoms, are able to unite in combinations of a type which are the active or essential ingredients of living matter. These so-called "Z"-elements are immaterial, intra-atomic, and, with the material ("Y") system of protons and electrons, make up the dual system of living matter. Life is regarded as a quantity—not of matter or of undefined or indefinable energy, but of the same constituents which make up matter, combined in a different manner. The soul is identified with life, and death is ascribed to separation between the two constituents of the dual system of living matter. Mrs. Gaskell discusses the origin of species with many quotations from Jacques Loeb, Bateson, and others, and comes to the conclusion that the current doctrine of man's descent is erroneous and that heredity is due to the constitution, the organization, and the pattern of the "Z"-system of the germ cell, and not to the chemical constitution of the matter ("Y"-system) of the germ cell. The final proof of this revolutionary hypothesis of life consists in testing for and measuring at the time of death the "Z"-system—the quantity life—which, according to the hypothesis, then becomes separated from the body—the atomic or the "Y"-system. Raymond Pearl prophesies that this book, unless a miracle happens whereby normal human behaviour is temporarily changed, "will doubtless receive its due measure of the violent opposition which every new idea regularly receives." It contains a very useful glossary of technical terms.

NOTES ON BOOKS.

WE have received a fourth edition of Dr. R. D. LAWRENCE'S *The Diabetic Life*,[7] of which the third edition was reviewed in these columns just over a year ago. Most of the changes are in points of detail, but more attention has been given to the treatment of coma and of intercurrent illnesses, as these are regarded by the author as being by far the most difficult and dangerous problems which the treatment of diabetes presents. Considerable modification has, however, been made in the tables of food values for carbohydrates, in so far as fruits and vegetables are concerned, in the light of research carried on in recent years. Dr. Lawrence's work is now available also in a French translation[8] which has been made from the second English edition.

The manual by Mrs. ANNE M. ROBERTSON entitled *Health and Exercise for Girls*[9] is a book that might usefully be added to a children's library, as it contains nothing which can in any way encourage the study of ill health. The author makes her introductory remarks in the form of an open letter to girls, in which she gives in very simple language the reasons for taking thought in order to be healthy. She says that "those people who, like the Greeks, have striven to improve their personal and individual lives have attained to the greatest wisdom and happiness that we know of." In the first part of the book the purpose and care of the different parts of the body are indicated in allegorical form, by comparing the body to a house. The final chapter on "The beauty of health" will probably appeal to adolescent girls. Part II contains a group of practical exercises for growing girls, arranged by Mr. F. A. Hornibrook, and a few words are devoted to the discussion of the value of systematic exercise. Eight simple exercises, founded on movements of primitive tribes, are then described, with good illustrations.

Dr. CARL FUNCK, in a pamphlet on nutritive allergy,[10] mentions that as early as the year 1914 he recognized the altered condition of the organism which follows the entry of alien proteins into the blood stream through the digestive tract—the condition to which von Pirquet has given the name "allergy." Dr. Funck discusses the whole problem of hypersensibilization of the tissues by alien proteins and their intermediate products of decomposition, with special reference to the part played by intestinal absorption and assimilation and the influence of this nutritive allergy in the pathogenesis of internal disease. His observations go to prove that even where the sensibilization can be definitely referred to an agent acting through the skin or respiratory tract, it often happens that removal of the cause is insufficient in itself to effect a cure, unless treatment is directed at the same time to the digestive tract.

Medical practitioners and medicine have often figured in novels, but few works of fiction give so graphic and sympathetic an exposition of these subjects as *My Brother Jonathan*,[11] by FRANCIS BRETT YOUNG. The author, himself a doctor, has a delicate appreciation of words, a gift for vivid character drawing, and a true dramatic instinct. His story is of the family of Dakers, living and working in the Midlands. The two brothers, Jonathan and Harold, have a curious upbringing by their father. Jonathan, plain and dull, is neglected, almost scorned; Harold is full of charm and grace, and on him is showered all the family affection. Jonathan develops into a man of strong character, full of human sympathy and the instinct of self-sacrifice. Hal goes to Harrow and Cambridge, wins his blue for cricket, all at the expense of his elder brother. Jonathan goes to the provincial medical school, where he gradually escapes from the repressions of the hobbledehoy, makes his mark in his hospital, and bids fair to become a surgeon of note. But he sacrifices this prospect to save his brother. He joins a worn-out lion-hearted general practitioner in a sordid town in the Black Country, and there follows the tale of his struggle against local medical and social ostracism. He wins his place in the affections of the people by love of work and love of human nature. The effect of the incoming of the Insurance Act is told (but it is odd that the author makes his hero resign his membership of the British Medical Association in defence of one of the cardinal points of the Association's policy—"free choice of doctor"), and the effect of the great war. The book is a romance, and there are the love stories of four people, two men and two women. The latter part of the book is almost too tragic. But it is a great story, finely conceived and finely written.

[7] *The Diabetic Life*. By R. D. Lawrence, M.D., M.R.C.P.Lond. Fourth edition. London: J. and A. Churchill. 1928. (5¼ × 8½, pp. viii + 188; 8 figures. 8s. 6d.)

[8] *Comment doit vivre le Diabétique*. Par R. D. Lawrence. Paris: J.-B. Baillière et Fils. 1928. (5 × 7, pp. 216; 6 figures. 16 fr.)

[9] *Health and Exercise for Girls*. By Anne M. Robertson, B.A.Lond. With illustrated supplement of practical exercises designed by F. A. Hornibrook. London: W. Heinemann (Medical Books) Ltd. (5½ × 8½, pp. ix + 62; 8 plates. 5s. net.)

[10] *Nutritive Allergie*. Von Dr. Carl Funck. Berlin: S. Karger. (Sup. roy. 8vo, pp. 66. M.3.)

[11] *My Brother Jonathan*. By Francis Brett Young. London: William Heinemann Ltd. 1928.

PREPARATIONS AND APPLIANCES.

NEEDLE FOR INJECTION OF VARICOSE VEINS.

DR. T. H. TREVES BARBER (London, S.W.) writes; The two main essentials for the successful treatment of varicose veins by the injection method are that the solution shall be brought into as close contact with the endothelium as possible and at its highest concentration.

This needle has been designed for the purpose of meeting these desiderata by the direction given to the spray; the eye, being laterally placed, enables the solution to be injected at an obtuse angle to the wall of the vein. There is less danger of the solution being injected into the wall of the vein instead of into the lumen, owing to the very short bevel and the distance from it to the eye of the needle. With an ordinary hypodermic needle such an event is liable to happen, especially with a long pointed bevel. Owing to the position of the eye there is less likelihood of it being blocked as it penetrates the tissues to enter the vein.

Finally, any direction may be given to the spray by axial rotation of the syringe. The lettering "REGD." stamped on the mount should be noted, as it indicates the direction of the eye in relation to the walls of the vein; it is thus possible to make a complete ring around the wall with the sclerosing solution. This method will be found useful in treating very dilated veins. The needles are made by Messrs. Allen and Hanburys Ltd., 48, Wigmore Street, W.1.

ADENOIDS AND ENLARGED TONSILS.

BOARD OF EDUCATION INQUIRY.

THE method of statistical analysis, though appropriate to the investigation of conditions so widespread as adenoids and enlarged tonsils, presents difficulties which may be overcome only by the exercise of considerable caution. The accumulation of statistical data must be entrusted to a number of workers who may differ as to the interpretation of the phrase "enlarged tonsils and adenoids," and may have varying standards regarding associated conditions—for example, nutrition—included within the scope of inquiry. Complete mathematical accuracy may be unattainable, but the interim report,[1] just published, of an investigation conducted by a medical committee of the Board of Education during the period 1924 to 1928 suggests that at least it is possible to achieve a general indication of the truth.

Scope of the Investigation.

The terms of reference of the committee were to inquire into the incidence of, and the physical and environmental conditions associated with, enlarged tonsils and adenoids, and into the method and results of treatment. The first step, therefore, was to seek information as to the significance of hereditary and familial influences; the influence of social and domestic environment, of diet in the early years of life, and of childhood infections and ailments; the association of the conditions with malnutrition, constitutional disease, oral sepsis, and special defects and symptoms; and, finally, the subsequent history as regards general health and special defects of children who had undergone treatment, as compared with others who had been left untreated. The total number of children submitted to examination was 640, of whom, after a certain amount of preliminary redistribution, 502 were cases—that is, children found to be suffering from one or both of the conditions in question—and 138 were controls—that is, children whose nasopharynx was apparently normal. The average age at first examination of the cases was 6 years 9.9 months; of the controls 6 years 9.5 months. In the group of "cases," 382 children, of whom 40 at some time or other had already been submitted to operation, were suffering from both enlarged tonsils and adenoids; 47 had adenoids only, and 73 only enlarged or septic tonsils.

Influence of Heredity.

In comparing the families of the control group with those of the group of "cases," enlarged tonsils and adenoids were found to occur more than twice as often in the latter as in the former. Thus a family history of this defect was recorded in respect of 57 per cent. of the group of "cases," and only of 24.6 per cent. of the group of controls.

Social Conditions and Diet.

Estimation of the significance of data concerning housing, dietary, and modes of living is complicated by the fact that the mere prevalence of a pathological condition in overcrowded or insanitary dwellings is no proof that the environment *per se* has etiological significance; the domestic circumstances may do no more than indicate poverty or neglect, and these, again, may be associated with defects of diet and unhygienic practices. The committee found that though there was no substantial difference as regards the extent of accommodation between the two groups, the condition of the housing accommodation, as indicated by the presence or absence of damp and sanitary defects, was better in the group of controls. The inquiry as to diet suggests somewhat less favourable nutritional conditions of ante-natal and early post-natal life, and later a poorer supply of vitamins in the food of children in the group of "cases" than in the controls.

Health During Infancy and Childhood.

The most striking contrast is afforded by the data concerning the health of the two groups during their first year of life: 30.7 per cent. of "cases" were said to have been generally in poor health during this period, as compared with only 4.3 per cent. of controls. Nasal or bronchial catarrh and allied conditions, general feebleness and malnutrition, and digestive troubles were met with most frequently. In regard to infectious diseases—for example, whooping-cough, measles, mumps—these are equally prevalent in both groups during the first year of life; but during school life the incidence of infectious diseases is uniformly higher among children with enlarged tonsils and adenoids than among normal children. So frequently, moreover, do parents report the onset of the nasopharyngeal condition after an attack of infectious disease that it may reasonably be assumed that in a considerable proportion of cases there is a direct causal relation. In some cases the febrile attack is probably an exciting cause of hypertrophy of lymphoid tissue in an already predisposed child; in others the infection may be the consequence rather than the cause of the nasopharyngeal condition; and, finally, the possibility must be considered of some fundamental constitutional weakness, which is the common cause of both conditions. Inquiry among parents as to the medical history of the children prior to examination elicited information which points to the presence of a tendency to catarrhal conditions of the nose and throat in the group of "cases" nearly double that in the group of controls; to ear disorders five times, and to diarrhoea eight times that in the controls. Thus 81.5 per cent. of "cases" and 44.2 per cent. of controls were liable to colds; 18.7 per cent. of "cases" and 3.1 per cent. of controls had suffered from otorrhoea, and 12.2 per cent. of "cases" and 1.6 per cent. of controls from diarrhoea. A condition of oral sepsis was found in 17.5 per cent. of the "cases" and in 8 per cent. of the controls. In simple enlargement of tonsils without adenoids oral sepsis was present in 13.1 per cent. and in cases of septic tonsils with or without adenoids in 20.6 per cent. Oral sepsis is thus more than twice as frequent in the group of "cases" as in normal children. But whether the definite association between the two conditions indicated by this fact is one of cause or effect can only be determined by further investigation.

The Age of Onset.

The age at which symptoms first became manifest in the younger group of children was 5.3 years, in the older group 7.3 years. If, as seems reasonable to assume, the condition is usually established before symptoms are noted by the parents, it would appear that adenoids develop in the majority of cases before five years of age, and that it is unusual for them to arise after the age of 7 or 8. Enlargement of tonsils may occur at any time during school life.

General Condition of Cases and Controls.

The relationship of subnormal health to enlarged tonsils and adenoids can only be determined by the continued observation of a large number of children before the onset of symptoms. In only forty-six of those studied in the present inquiry—too small a number to justify any conclusions—did the condition develop in the course of following up; in the remainder the differences in general condition between cases and controls might represent either causes or results. In general appearance, 12 per cent. of "cases" seemed unhealthy, as against only 0.8 per cent. of controls. Under 6 years of age the proportion of unhealthy children was as high as 16.2 per cent. In the group of "cases" the nutrition of 45.2 per cent. was good, of 50.8 per cent. moderate, and of 4 per cent. it was bad. In the controls it was good in 58.5 per cent., moderate in 40.8 per cent., and bad in 0.7 per cent. No significant difference was found in the heights of the two groups, which appeared to approximate closely at all ages, but in regard to both weight and chest measurement, from the age of 6 years the controls were consistently, though not greatly, better than the "cases." It is noteworthy that up to 6 years of age the inferiority of the group of "cases," though obvious on inspection, was not demonstrable by measurement. One must assume that the indications of defective nutrition obtained by observation are as reliable as those obtained by simple measurements, and there seems

[1] Board of Education, Interim Report of the Medical Committee on Adenoids and Enlarged Tonsils. 1929. H.M. Stationery Office, or through any bookseller. Price 6d. net.

no reason to doubt that from birth to the end of school life the cases under consideration show a lower standard of physique and general nutrition than the normal child.

Respiratory and Circulatory Systems.

Children with adenoids are far more susceptible than others to catarrhal affections of the respiratory tract. The lungs were normal in 75.9 per cent. of the "cases," and in 93.2 per cent. of the controls. Bronchial catarrh was present in 18.3 per cent. and defective air entry or poor expansion in 5.7 per cent. of the "cases," as compared with 3.1 per cent. and 3.8 per cent. respectively in the controls. Defects of the heart and circulatory systems were equally prevalent in the two groups, there being 3.2 per cent. among the "cases" and 3.1 per cent. among the controls. So far as cardiac defects are an indication of rheumatism there is very little here to suggest the close association so often alleged between this disease and enlarged tonsils and adenoids. It is significant, however, that though a history of rheumatism was recorded in only 6 out of 627 children examined, all these 6 were in the group of "cases."

Other Pathological Conditions.

The proportion of rachitic children among the "cases" was higher than among the controls, being 7.8 per cent. in the former group and only 3.8 per cent. in the latter. These figures suggest the possibility that deficiency of vitamin D, known to be the essential cause of rickets, may also be an important factor in the production of naso-pharyngeal abnormalities. It seems reasonable to suppose that a large number of children may suffer from vitamin deficiency too slight to cause clinical rickets, but enough to bring about defects whose etiology has hitherto been little understood. Signs of tuberculosis were observed in 2.1 per cent., and syphilis in 0.8 per cent. of "cases"; no signs of either disease were recorded among the controls.

Educational Standard.

Educational retardation is a fairly common result of adenoids, especially in the higher age groups. Of the cases under review 20.5 per cent. were retarded, as compared with 6.7 per cent. in the group of controls. Of the children under 6 years of age the percentage retarded was 9.7, between 6 and 10 years it was 24.7, and over 10 years 40.6. The cause of backwardness in a certain number of cases is defective hearing; in others there is a certain mental lethargy, which may be due to interference with the circulation in the frontal lobes. Whether intelligence as measured by the usual tests is actually lower than the normal does not seem to have been determined, and the committee suggests that this is a point worth investigating, particularly by a series of tests to ascertain whether any improvement in the intelligence quotient follows the removal of the adenoids.

Association of Special Symptoms.

In working out the correlation of special symptoms with the nasopharyngeal condition it was found convenient to classify the cases in three groups: A, cases with involvement of tonsils only; B, with only adenoids; and C, with adenoids and involvement of tonsils. Of 413 cases examined 58 fell into Group A, 40 into B, and 315 into C. Mouth breathing and snoring, pointing to nasal obstruction, were commonest in C (75.9 and 74.3 per cent. respectively), somewhat less in B (52.5 and 67.5), and least in A (31.0 and 34.5). Examination of the nasal passages showed significant differences between the three groups in regard to actual defects in the passages, and a much greater frequency of nasal catarrh in those children with adenoids. In Group C, for example, 15.6 per cent. had hypertrophied turbinals, in Group B 7.5 per cent., and in Group A only 5.2 per cent. Among the controls similarly examined there were only two with hypertrophied turbinals.

Sleep disturbances, which may be associated with nasal obstruction, with irritation of the bronchial passages, or with interference with the cerebral circulation, are more common in children with adenoids than in normal children; 54.2 per cent. of the "cases" were recorded as suffering from disturbed sleep, as compared with 15.7 per cent. of the controls. Correlating disturbed sleep with the three above-named groups, it was found that the condition appeared in 59.0 per cent. of Group C, in 55.0 per cent. of Group B, and in 27.6 per cent. of Group A. Defective hearing was recorded in respect of 27.4 per cent. of "cases," and signs of chronic otitis in 27.8 per cent. Defective hearing was commonest in Group B, least common in Group A. Enlargement of tonsils, though liable to cause deafness in chronic cases, appears, therefore, to be a far less potent cause of this defect than adenoids. Varying degrees of enlargement of the cervical glands were recorded in 69.0 per cent. of "cases." This condition occurred most frequently in Group C, and least in Group A. Speech defects, for the most part attributable to mouth breathing and defective hearing, were most prevalent in Group C (21.6 per cent.), less in Group B (12.5 per cent.), and least of all in Group A (6.9 per cent.). A tendency to febrile attacks was reported in respect of 26.4 per cent. of the cases, as compared with only 1.5 per cent. of the controls. Whatever the cause or causes of these attacks, which probably include a variety of minor infective processes, they are obviously associated with tonsils and adenoids, and particularly with the two conditions combined. Enuresis was somewhat more common in all groups of "cases" than among the controls.

After-History of Enlarged Tonsils and Adenoids.

The committee has records of 63 children in the group of "cases" who, for varying periods (the average being 1 year and 4 months), were untreated; 43 of these had enlarged tonsils and adenoids, 10 had adenoids only, and 10 only enlarged tonsils. During the period in question none of the 10 with only tonsils developed adenoids; in 3 the tonsillar enlargement increased; in 1 it diminished, and in 2 it disappeared. Of the 53 cases with adenoids, these growths increased in 6, improved in 6, and in 5 underwent spontaneous cure. Tonsillar enlargement, present originally in 37, developed in 6 others during the follow-up, increased in 8, was unchanged in 18, decreased in 2, and disappeared in 9. It is noteworthy that none of the children whose adenoids or enlarged tonsils spontaneously cleared up was under 6 years of age. Spontaneous improvement appears to have been generally accompanied by amelioration of associated symptoms.

Results of Operations.

During the period of observation 131 children had their adenoids removed, the time between operation and the final re-examination varying from a few weeks to two years. The various associated symptoms were in many instances apparently cured: in some they were improved or unchanged: in a few they became worse. Figures obtained from an investigation of a small group of children re-examined one to six years after operation (the average interval being four years) suggest the possibility that the early improvement after operation is not always maintained. This is particularly noticeable with respect to nutrition, in which an improvement was observed in a majority of cases, but in only 20 per cent. of cases re-examined after some years. Possibly the circumstances of many a child after operation are for a time more favourable than usual, and the operation may be credited with an improvement due in reality to other causes. Otorrhœa seems to have been but little affected by operations for tonsils and adenoids, but the majority of cases of nasal catarrh were cured as the result of operation. Bronchial catarrh does not seem to benefit to the same extent, only 10 cases being cured out of 27. A tendency to sore throat was remedied in 21 out of 26 cases.

Further Investigations.

The committee has decided to undertake the systematic examination of a series of unselected children from birth in order to ascertain the facts in their early history and conditions which are associated with the onset of enlarged tonsils and adenoids. Their examinations will include a detailed inquiry into maternal history during pregnancy, the dietary of the child during early life, as well as a careful record of the dental condition. Further inquiry will relate to the frequency of association of certain bony abnormalities suggestive of vitamin deficiency with enlarged tonsils and adenoids.

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THE SIGNIFICANCE OF IODINE.

To those of our profession who are engaged in practice, in teaching, or in research, or who, perhaps, try to combine at least two of these in their daily tasks, the scientific review is becoming more and more a necessity. It is impossible to be reasonably well informed upon any subject without keeping in touch with current literature; yet, over a narrow range of subjects, it is equally impossible to read, much less to criticize or appreciate, the contents of more than a very few of the specialized journals. We must rely, therefore, upon publications in which scientific work is condensed, analysed, and presented in a critical manner; nor ought we to be slow in acknowledging our indebtedness to those who undertake the laborious task of preparing reports, and to the bodies under whose auspices such reports are published.

The Medical Research Council's Special Report, No. 123, on "Iodine in nutrition," prepared by Drs. J. B. Orr and L. Leitch, certainly does not fall short of the standard set by previous communications published by the same body. A study of the section headings alone gives some idea of the extent of the matter treated and of the thoroughness with which the authors have done their work. The discovery of iodine depended on the chance observation of a French nitrate manufacturer in the early part of the last century. Investigation has since shown it to be ubiquitous; it is present in earth, air, and sea. It stands in a very special relation to biological processes, and neither the animal nor the vegetable world can remain indifferent to its presence or absence. Living cells possess a curious property which enables them to store up iodine obtained from their surroundings, and it is clearly no accident that our chief sources of iodine supply are deposits gathered by living agencies—seaweeds and guano beds. It has been shown that an optimal concentration of iodine increases the yield of crops and the growth of domestic animals. Manures and cattle foods may both be enriched with iodine. Clearly, the study of the iodine content of soils and its availability for living matter is an important subject for the agriculturist. Some soils, it appears, give up their iodine more readily than others, while the common manures vary widely in iodine content.

It is natural for us to think of iodine in connexion with the thyroid gland; indeed, while we reckon the iodine content of soils and water in micrograms (millionths of a gram) per kilogram, in the thyroid it is present in amounts up to 0.04 gram per 100 grams of fresh tissue. The animal body, apparently, has found it necessary to set aside certain tissues in which the power of collecting iodine, common to all cells, is intensified to a very special degree. It is, perhaps, an example of chemical specialization, comparable with the functional specialization familiar to us in muscle, nerve, and the like. Medical interest has, of course, long been focused on goitre. The ancients treated the disease with burnt sponge—an iodine-rich material—and forty-five years before Baumann discovered iodine in the thyroid gland Chatin was endeavouring to treat goitre by the administration of iodine. The early French experiments proved a disastrous failure, chiefly on account of the dangerously high doses administered; it was only later, as the effectiveness of minute doses of iodine came to be appreciated, that such methods proved their real value. In the biochemical study of the thyroid gland the chief landmarks of recent years have been Kendall's isolation and Harington's synthesis of thyroxin. It was recognized before that the iodine of the thyroid was in organic combination, but the isolation of an organic substance, the discovery of its constitution, and the demonstration that its effects are identical with those of the whole thyroid gland, have made possible the quantitative observations so desirable in scientific work.

It is of the greatest interest that, although iodine is physiologically very active, its effects are not the same as those of thyroxin; evidently the body finds the manufactured article more suited to its needs than the raw material. Certain types of simple goitre can be successfully treated by potassium iodide; and, so far as we know, we are here dealing with a straightforward replacement. On the other hand, Graves's disease, the symptoms of which strongly suggest hyperthyroidism, can also be successfully treated by inorganic iodine. Now Hildebrandt found that while injection of thyroxin caused a rise in the basal metabolic rate of rats, injection of inorganic iodine caused a fall. If an injection of thyroxin was later followed by one of inorganic iodine the same phenomena occurred, but the threshold for the inorganic iodine effect was much lowered. Thus, while in the normal rat 0.5 mg. of iodine caused an observable fall in the basal metabolic rate, some time after thyroxin injection the same effect was produced by 0.01 mg. The explanation of this phenomenon has yet to be found, but the analogy between it and the behaviour of iodine in hyperthyroidism is obvious. In a recent paper Kendall[1] has brought forward evidence to show that thyroxin is neither the only nor the most physiologically active inorganic iodine compound in the thyroid. Indeed, from some samples of dried thyroid possessing marked physiological activity he was unable to isolate any thyroxin at all. Suggestive as such observations are, they must, of course, survive the test of further investigation before they can be finally accepted.

Perhaps the strongest impression left on the mind by the report of Orr and Leitch is that iodine possesses some fundamental significance for life which hitherto has eluded us completely. Hardly a cell remains indifferent to it; iodine deficiency affects almost every function and every tissue in the body. Preoccupation with purely pathological matters has perhaps blinded us to the wider significance of our observations; yet it seems that we shall have to extend our horizon considerably before we can grasp the true significance of this element for the processes of life.

TRAFFIC IN DANGEROUS DRUGS.

THE medical profession has a special interest in the suppression of drug addiction, and therefore the efforts of the League of Nations to check the illicit traffic in drugs deserve the sympathetic attention of our readers. The Council of the League receives reports from an advisory committee on traffic in opium and other dangerous drugs, which meets once or twice a year. The problems that confront the committee are of extraordinary complexity, but some idea of a few outstanding facts can be gathered from the report of the eleventh session that was published last summer.[2]

[1] *Journ. Biol. Chem.*, December, 1928, 80, p. 837.
[2] Minutes of the Eleventh Session of the League of Nations Advisory Committee on Traffic in Opium and Other Dangerous Drugs. C.328, M.88, 1928, xi, p. 364.

There are really two problems involved: first, that of opium smoking and opium eating in the Far East, and secondly, that of the abuse of the alkaloids morphine, heroin, cocaine, etc. This latter is a problem that is in no way limited to the Far East, for the abuse of these drugs is a danger that threatens every country in the world. The two problems are linked by the fact that limitation of the production of alkaloids is made much more difficult by any excessive production of the raw materials. While abuse of the alkaloids constitutes practically the entire problem of drug-habit formation among Western nations, these alkaloids are rapidly finding a market also in the East. The evils produced by the older vices of opium smoking and eating are bad enough, but it would probably be agreed that the effects of alkaloid addiction are much worse. Indeed, the aggravation of the evil produced by the change from opium to morphine has been compared to the effect of substituting gin for beer in England in the first half of the eighteenth century. In the report quoted M. Chao (China) went so far as to say: "The effect of this new danger is at present so appalling that many Chinese social leaders have expressed their readiness to reintroduce opium smoking if this would put an end to the use of morphine"; and later he quoted the popular opinion that opium smoking may be regarded as, on the whole, a harmless habit, and easily curable in comparison with the new drug addiction.

Now the smuggling of alkaloids is far easier than the smuggling of opium. The extent of the trade is indicated by the statement that in 1926 3.77 tons of smuggled alkaloids were seized or traced in China. The usual assumption for Western countries is that seizures represent 10 per cent. of the total traffic, but this is probably far too high a figure for a country so disturbed as China. The total legitimate need in the world for these drugs has been estimated to be approximately as follows: morphine 20 tons, heroin 2 tons, cocaine 12 tons. If M. Chao's figures are correct they imply that the amounts of morphine and heroin smuggled into China annually are greater than the total annual legitimate world requirements for these drugs. It is obvious that European civilization has a grave responsibility in this matter, since the greater part of these alkaloids is manufactured in Europe. Europe has a definite duty in regard to the illicit traffic in dangerous drugs, because Article 9 of The Hague Opium Convention of 1912 requires the contracting powers to limit their manufacture to medical and legitimate needs, and by Article 13 they agree to control their exports of these substances.

The illicit trade in morphine and cocaine is, of course, not confined to China. Sir Malcolm Delevingne described the situation in China as being far the most serious, but mentioned that the illicit traffic was still very serious in the United States of America and in Canada, and also in the Eastern Mediterranean. Egypt was stated to be inundated by contraband drugs. The view of the United States Government is that on account of the portability of the drugs and the enormous profits accruing from their illicit traffic it is almost impossible to control this evil by customs, and that the only hope of improvement lies in limiting the world manufacture of drugs of addiction to quantities commensurate with legitimate medicinal needs. Unfortunately the quantity manufactured appears to be actually rising, since it is estimated that the world production of morphine was 60 tons in 1926, as compared with 30 tons in 1921. In this connexion a new difficulty arises in that it is stated that nearly half the morphine manufactured is turned into codeine. Now it is generally admitted that codeine is not so apt to cause addiction as morphine or heroin, but the fact that so large a proportion of morphine disappears from control in this manner greatly increases the difficulty of keeping track of the morphine produced. Moreover, chemists have recently produced two new compounds—eucodal (derived from thebaine) and dicodide (derived from codeine)—and the expert committee of the League of Nations holds that both are habit-forming drugs. Reports from America indicate that they are already well known to the dope vendors in that country. It is believed that there are only about forty factories engaged in the production of habit-producing alkaloids, and figures for the manufacture, export, and import of these drugs for several nations are given in an appendix to the report; but, unfortunately, they fail to explain the origin of the immense quantities well known to be passing through clandestine channels. We referred in our issue of February 2nd (p. 213) to the disclosure, at a meeting of the League advisory committee, of the existence of an enormous traffic in morphine, heroin, and cocaine of Swiss manufacture carried on by a Dutch firm, now suppressed, trading largely through Viennese agencies, with the Far East. Since then Sir Malcolm Delevingne has given further details about the widespread ramifications of this illicit drug traffic, in the course of an address to the League of Nations Parliamentary Committee, at the House of Commons on February 11th.

It appears to be generally agreed that addiction to morphine, heroin, and cocaine has increased very greatly during the past decade, and the members of the advisory committee did not consider last year that the back of the illicit traffic had yet been broken. Apart from the damage done to individuals, this traffic obviously constitutes a serious source of international ill will, since countries that have taken pains to regulate their drug manufacture naturally resent being flooded with poisons from countries that are less careful or less scrupulous.

MINOR INJURIES OF THE VERTEBRAE.

AT the joint meeting of the Surgical and War Sections of the Royal Society of Medicine, reported in this issue at page 298, Group-Captain H. V. Wells raised a question to which it is not easy to find an answer. He asked for information and guidance as to the diagnosis and early treatment of what might be called masked spinal injury—that is, a condition in which symptoms appear and radiological examination shows alterations in the shape and density of one or more vertebrae long after recovery from the original shock has apparently occurred. Sir Percy Sargent agreed as to the occurrence of these late symptoms, and asserted categorically that a spine which appeared normal radiographically immediately after the accident might show atrophy and collapse of one or more vertebral bodies many months afterwards. He attributed the symptoms to injury, at the time of the original accident, of muscles supporting the spinal column, and to a subsequent yielding of the vertebral body or bodies deprived of their normal muscular support. Most of those who took part in the discussion accepted the clinical picture drawn by Captain Wells, but were generally unable to offer a satisfactory explanation of its pathology. Dr. Bertram Shires, however, was sceptical about the alleged normal condition of the bone immediately after the injury. He declared that in none of the cases brought forward had a fracture been discovered after the skiagrams in the early stages had proved negative. He strongly recommended that in all cases of violent shock to the spine—such, for example, as

that following aeroplane crashes—very careful radiograms, both from the lateral and from the antero-posterior points of view, should be taken as a routine measure as soon as possible after the accident. If it is true that vertebral bodies shown radiographically to be unchanged immediately after an accident are apt none the less gradually to develop atrophic changes and to alter their shape, it is most desirable to produce in a series of cases a succession of radiograms showing how the various changes develop. Such an investigation might well occupy the attention of the medical officers of the Royal Air Force in the near future. So long as our knowledge of the pathology of minor injuries to the vertebrae is deficient treatment must be largely empirical; without a sure foundation in morbid anatomy we cannot even be certain of preventing the appearance of delayed lesions. Sir Percy Sargent and Dr. Morton Smart referred to the good results following electrical treatment to the muscles, the latter claiming that these results were sometimes due to breaking down adhesions by active muscular contraction. There can be no doubt that the muscles must be taken into account in the treatment of this type of injury no less than in the treatment of injuries to the limbs. Some of us are apt to regard a fracture as affecting the bone alone—an error in which we have perhaps been confirmed by the mere fact that muscles, like other soft parts, are generally not represented on *x*-ray plates. But in a spinal injury severe enough to cause crushing of a vertebral body, ligaments and muscles must suffer as well, and in devising means of treatment this fact should not be forgotten. In a leading article (December 17th, 1927, p. 1152) commenting on a discussion of the Section of Orthopaedics of the Royal Society of Medicine reported in the same issue (p. 1145), we referred to some work of Dr. R. B. Osgood of Boston on the subject of fracture of the spine. Dr. Osgood, basing his conclusions on a survey of 242 cases, maintained that following industrial and motor accidents there frequently occurred undetected compression fractures which, left untreated, might lead to a train of late symptoms similar to those described by Group-Captain Wells. Support for the vertebra by means of a suitable brace (such as that mentioned by Sir Percy Sargent) would prevent development of late symptoms in most, if not in all, cases, and yet permit the wearer to follow even an active occupation. The discussion on Group-Captain Wells's paper may perhaps seem somewhat negative and inconclusive; it should none the less help to direct attention to a gap which requires filling in our pathological knowledge, and, above all, to the paramount necessity of taking efficient radiograms of every case in which, from the nature or violence of the accident, the spinal column may have suffered injury.

THE MAYOS.

The name of Mayo, so honoured in our profession to-day, has long held a distinguished place in the history of science. John Mayouwe, Mayow, or Mayo, one of the pioneers of physiology in the second half of the seventeenth century, died in 1679 at the age of 35; until the appearance of Priestley and Lavoisier there was no one worthy to take his place in the field of physiological chemistry. His memory is one of the glories of English medicine. He left no offspring, and we do not know whether any of the medical Mayos of the eighteenth and nineteenth centuries could claim to be his kin. It is a remarkable fact that of the fourteen Mayos commemorated in the *Dictionary of National Biography* six were medical men. Four belonged to an old Hertfordshire family, and of these two were physicians and one was a surgeon to the Middlesex Hospital, and the other, Thomas Mayo, was President of the Royal College of Physicians in the period 1857–62. Herbert Mayo, surgeon and physiologist, was a prominent figure a hundred years ago; he is remembered not only for his professional attainments, but for his success in a bitter controversy with Sir Charles Bell on the question of the nerve supply to the muscles of the face. The honoured name of Mayo was carried across the Atlantic by William Worrell Mayo, who, after receiving his medical education in Manchester, went as a pioneer into what was then the wilderness of Minnesota; there, in Rochester, he founded the St. Mary's Hospital, to the direction of which his two distinguished sons succeeded. It is unnecessary to dwell on the wonderful organization which has made the names of the brothers Mayo and their skill famous throughout the world. We learn with great pleasure that both of them, forsaking one of their own precedents, will visit Manchester next July to take part in the Annual Meeting of the British Medical Association. We venture to believe that William and Charles Mayo will receive not only a warm welcome from the Association, but all the honour which Manchester can pay to the celebrated sons of one of her own alumni.

THE EPIDEMIOLOGY OF LEPROSY IN AUSTRALIA.

A report on *The Epidemiology of Leprosy in Australia*,[1] by Dr. Cecil Cook, Wandsworth Research Scholar, 1923–25, of the London School of Tropical Medicine, gives us in some 300 pages a very detailed account of the prevalence of leprosy, with tables of cases, together with much theoretical discussion and a good deal of repetition of the arguments used. The more important facts brought out by a painstaking inquiry include strong evidence that leprosy was probably unknown among the Australian aborigines before the introduction of the disease by coloured immigrants, such as Chinese, especially in the Northern and Western Territories and in Victoria and the southern parts of New South Wales; another route of infection was through the South Sea Islanders, or Kanakas, so largely employed formerly, and to a less extent at the present time, on the Queensland sugar plantations. Owing to the great excess of males these coloured aliens cohabited with and infected the aboriginal tribes of Australia, and they in their turn communicated leprosy to the white population in areas and at times when the white males greatly exceeded in number the females, as indicated by the great bulk of the cases occurring in adult males, especially in agricultural districts. Later the disease spread among the domesticated whites, when females and juveniles formed the majority of the infections, indicating the usual type of household infections, which still persists, especially in Queensland, and, to a less extent, in New South Wales. In the sparsely inhabited Northern Territory the disease died down with the disappearance of the great majority of the aboriginals, and in Victoria the white races have never been infected, because the aboriginal tribes had practically disappeared before the introduction of leprosy by Chinese with the opening up of the goldfields; for there was not sufficient social intercourse between the Chinese and the white races to allow of infection of the latter. At one time the author was inclined to think that the rat might be an intermediate host of leprosy, and that infection might be transmitted by the rat flea, *X. cheopis*, but further experience brought him into agreement with the general view that the disease is slowly contagious through prolonged close personal contact. The incidence of the disease confirms in a striking manner the relationship of high humidity to high leprosy rates, mostly of the infective nodular type in the damp coastal area, and with few nerve cases in the dry and elevated interior. The uninfective nature of many nerve cases is recognized, but apparently they also are segregated. Australia presents an interesting field for the study of the effects of

[1] *The Epidemiology of Leprosy in Australia.* By Cecil Cook, M.B., Ch.M.Syd., D.T.M. and H. Commonwealth of Australia, Department of Health, Service Publication, No. 38. Canberra: H. J. Green. (6 × 9½, pp. 303; illustrated.)

thirty years' stringent legal compulsory notification and segregation. In New South Wales Dr. Cook considers that the disease is now well under control, as no new cases have been found during the last few years, but no figures or diagrams are given in support of this statement. On the other hand, diagrams are included in support of his conclusion that "in Queensland it appears to be gaining ground in spite of an apparently identical prophylactic system" as in New South Wales. Nevertheless he considers that "lazaret isolation is, therefore, the prophylactic measure *par excellence*." The better results in New South Wales are attributed to the disease being more domesticated there, and to the early good work of Ashburton Thompson, while in Queensland some cases are hidden and there is insufficient control of contacts and discharged patients. Moreover, no provision is made for the treatment of early bacteriologically negative cases—just those which respond best. The average duration of the disease on first detection is not recorded, but elsewhere it persists for four or more years, and this accounts for the comparative failure of rigid isolation. The most important of Dr. Cook's recommendations is the adoption of the plan, previously advocated in the work on leprosy of Rogers and Muir, to examine all contacts of known lepers every six months for five years in order to detect and treat the early infections. He thinks also that the treatment in the lazarets requires to be improved.

MONKEYS AND HUMAN DISEASE.

THE position of the monkey and his relations in the evolutionary scheme has always been a subject of speculation and interest to every class of student. His near relationship to man is now generally admitted; how near is that relationship was disclosed at a meeting of the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine held on February 7th, when "Monkeys and human disease" formed the topic for discussion. The anatomical relationship between man, apes, and monkeys was epitomized by Mr. R. I. Pocock, F.R.S., late superintendent of the London Zoological Gardens. He pointed out that one of the most marked differences between true monkeys and apes is seen in their mode of locomotion. On the ground the monkey is a quadruped, the ape a biped, especially when young; in the trees monkeys are good climbers and jumpers, jumping for the top of a branch, while apes are poorish climbers, and jump for the under side of a branch. In fact, there is some evidence to suggest that the ape's arboreal activities are a secondarily acquired character—induced perhaps by pressure from his highest relation. Mr. Pocock considers that the most significant difference between man and other primates lies in the foot, and that man left the simian stem in relatively early evolutionary times. The other speakers considered this relationship from the point of view of disease. Mr. Lovell showed that many of the intestinal conditions of monkeys in captivity were caused by organisms found also in man. As in man, tuberculosis was a very common condition; however, there was a slight difference, in that monkeys were almost equally susceptible to both strains of mammalian bacillus, though deaths from tuberculosis were mainly due to the human variety. Little is known about the virus diseases of monkeys, but, as Dr. E. Hindle said, only in primates was it possible experimentally to develop yellow fever, poliomyelitis, and perhaps measles. Other human virus infections can, of course, be transmitted to them, but in these three diseases the monkey appears to be the only alternative host to man. Among the internal parasites virtually all the protozoa of man are found in apes or monkeys, but it appears to be possible that the malarias of man are biologically distinct from those of apes. The story is a different one with the worms, however. With the exception of the schistosomes practically none of the characteristic human worms occur in other primates. Accidental interchanges do occur, and in parts of Africa monkey forms quite frequently appear in man; but on the whole their faunas are distinct. An interesting evolutionary point was made by Dr. T. W. M. Cameron in connexion with pinworms. The method of spread of these parasites is by personal contact, and this tends to limit the various species of parasite to the same host. Now pinworms occur in monkeys, and all the forms in primates belong to the same genus. The species in monkeys, however, are different from the human, and the more distant the relationships between the hosts the greater are the differences between the parasites. A somewhat similar state of affairs among the lice was pointed out by Dr. V. B. Wigglesworth. The family containing the human lice is limited to the primates; the genus in man is found only in apes, while that in monkeys is a different genus. The crab louse—the third member of the family—is only found on man and the gorilla. The evidence of the part played by apes and monkeys in the spread of human disease was, on the whole, reassuring; they may, however, as has been suggested in these columns (December 29th, 1928, p. 1184), play an important part in the spread of bilharzia disease, and it is just possible that they act as reservoir hosts for yellow fever. Dr. Andrew Balfour drew attention to the fact that in South America epidemics in monkeys of what might have been yellow fever often preceded epidemics in man of what certainly was yellow fever. The evidence, however, is still inconclusive. Certainly here, and in some other conditions, the monkey has been an essential laboratory aid, but to the hygienist his significance is relatively slight. In fact, as Professor Leiper pointed out, such of man's diseases as are common to him and the lower animals result from food habits and contact; and domestication is a much more important factor than blood relationship.

PAUL UNNA.

BY the death of Paul Gersen Unna in his seventy-ninth year a noble figure and a great leader has been lost to dermatology. It is no exaggeration to say that Unna has done more than any other single person for the advancement of the specialty to which he devoted his long life, and to which he has been faithful right up to the end. Never has he ceased from work and research. It was only within the last few months that he published his *Histochemie der Haut*, a volume which showed that the flight of time had in no way impaired his scientific ardour or acumen. Unna was born on September 8th, 1850, of a Hamburg family with strong medical traditions extending back some two hundred years. After a general education in his native town he commenced his medical studies in Heidelberg in 1870, but they were interrupted almost at once by the outbreak of the Franco-Prussian war, for which he immediately volunteered, and in which he was dangerously wounded in the leg. Subsequently he studied in Heidelberg, Leipzig, and Strasbourg, where in 1875 he submitted for his doctor's degree a thesis on the development of the skin. This thesis was only accepted after a struggle with von Recklinghausen, who objected to it on the ground that staining reactions, on which his argument depended, were insufficient evidence for scientific conclusions. With the help, however, of Waldeyer, Unna obtained his degree, and the revolutionary ideas first enunciated in that thesis have formed the basis of a great part of his subsequent researches, even up to the recently published *Histochemie*. Unlike most of the leading figures of German medicine, Unna did not become associated with any university until very late in life. His whole professional life was spent in his native city, where he started as an assistant to his father in general practice

in 1878. From the very first he specialized in dermatology, with such success, indeed, that in 1881 he founded a clinic of his own, which in course of years grew into a very large institution. In 1882 he began the publication of a periodical devoted to dermatology, now widely known as the *Dermatologische Wochenschrift*, and it is in its pages that most of his papers have been published. Already in these early years Unna had made professional pilgrimages to foreign countries, where he became acquainted with other dermatologists. He had considerable social qualities, and the connexions so formed became of importance in after-life. The chief objects of his research during this time were leprosy, which he had seen in Norway with Hansen, and, as always, the staining reactions of the skin as a guide to the understanding of its chemistry and biology. It is a curious thing that Unna's reputation grew much more quickly in foreign countries than in his native land. He was held in particularly high esteem among British dermatologists; after his first appearance at a meeting of the British Medical Association in 1887 he was invited almost every year to take part, and his travels were extended as far as the United States of America. Partly as a consequence of his journeys, he brought out, in conjunction with the late Sir Malcolm Morris and others, the *International Atlas of Rare Diseases*. In 1890 he first described plasma cells, which were then received with great scepticism, especially by Neisser and his pupils, with whom Unna was usually in conflict, but which are now one of the best-known kind of cell in pathology. In 1897 began to appear the famous *Atlas of the Pathological Histology of the Skin*, to be completed in 1910 in nine volumes. About the same period much of Unna's attention was directed to the problem of eczema, which he thought that he had solved by the discovery of a microbe which he designated the morococcus. His work on this subject, however, has not been confirmed by subsequent workers, and we believe that ultimately Unna himself receded from the position he had taken up. These subjects by no means exhaust the tale of his activities; every branch of dermatology was touched by him, and he made particularly important contributions to therapeutics, on which he published a textbook. It will be remembered that he introduced ichthyol to the profession. Meanwhile, the activities of Unna had attracted many students of dermatology to Hamburg, which, although not a university, gradually became a great centre of dermatological education, and the master gathered round him a distinguished corps of assistants. In 1900, when the new University of Hamburg was barely visualized, Unna was already giving a complete course of instruction in his subject. In 1907 he was accorded the title of professor, but it was not until 1919 that the university was actually inaugurated, and Unna, in his sixty-ninth year, became professor of a university in being. Unna was never particularly keen on practice for its own sake. With his reputation as a master in his department he could not help attracting a vast and remunerative clientele, but as the years passed by he relegated it more and more to his capable assistants, among whom his three sons were conspicuous, and devoted his energies increasingly to his favourite subject, the biochemistry and histochemistry of the skin. This semi-retirement was interrupted by the war. It bereft him of all helpers except his daughter-in-law, Dr. Marie Unna, and the veteran Dr. Leistikow, but it found his energies unimpaired. All difficulties of private and hospital practice were overcome, and he even found time to impart to a wearied nation the fruit of forty years of experience, the war aphorisms of a dermatologist. That was ten years ago; since then he has continued to work with all the old industry and application. What that means is shown by the mere list of papers written by him. During his sixty years of active professional life Unna produced over six hundred publications dealing with every aspect of his subject. It is quite impossible to describe their variety. He has died in harness.

PUBLIC ELEMENTARY EDUCATION.

In their announcements of forthcoming publications, and in those statements which sometimes accompany volumes sent for review, publishers may be taken to set forth what they believe to be the value of a book and the aims and intentions of its author. On examination, however, the claims thus made are not always justified. A case in point is the volume entitled *Mass Education in England*,[1] by Dr. J. H. Garrett. The publishers regard this as "a very important book, an informed and trenchant criticism of public elementary education with some startling information and deductions." In this book, they say, the author "sets out to prove the fallacy of proposing an equal education for all children irrespective of their varying individual educability and the nature of their after-employment. He shows the waste in teaching effort and public expense entailed in the present system, and the irrational enthusiasm that proposes further effort and expense by extension on the same lines." It may, however, be fairer to take Dr. Garrett's own statements rather than those of his publishers. At the outset the author makes two main propositions. The first is that "little thought has been directed to the varying mental qualities of the scholars and the difference of treatment required in the case of one and another to accord with the comparative ease and difficulty of learning, or of being taught, which they display, and to the failure as well as the success that is inevitable in school education. The human material to be educated has been treated as if it were all equally teachable." On the contrary, this individual variation of mental power and educational need has been the chief subject to which teachers and administrators, in general, have directed their attention for many years past. The success of different schools and authorities in dealing with the problems has no doubt been unequal, but, on the whole, it has been considerable; and the fundamental proposals of the Consultative Committee to the Board of Education, which Dr. Garrett so roundly condemns, are all directed to making greatly increased provision for these varying individual needs. The author's second proposition is that "for the main part of the populace the young person has no immediate chance of choosing his occupation. By far the greater part of active human labour concerns employments of a mechanical or simple nature, requiring no great mental endowment. These simpler employments actually prevent the application of the knowledge acquired in schools, which is consequently soon forgotten, the whole effect of the school effort being lost and wasted, sometimes entirely, sometimes in part." The school education of the majority of children ought, therefore, to be not extended, but curtailed. Dr. Garrett's argument on these two propositions is as follows. The majority of children are of very limited mental capacity; those whose capacity is definitely superior can soon be picked out, and may properly receive a wider instruction than the others; in all cases the overwhelmingly predominant aim must be to give just so much instruction as will enable the child to earn a livelihood. Thus, any instruction beyond reading, writing, and the simpler operations of arithmetic is sheer waste, as the great majority of pupils will perforce be engaged in very simple occupations. Instruction in manual work, in domestic subjects, or even the more directly occupational teaching in technical schools is also sheer waste, as these things can be picked up better in the course of practical experience outside the school. This being so, in

[1] *Mass Education in England*. By J. H. Garrett, M.D. London and Cheltenham: Ed. J. Burrow and Co., Ltd. 1928. (Cr. 8vo, pp 183. 3s. 6d. net.)

the great majority of cases there is no need for a teacher to have appreciably more knowledge than is needed by the pupil. An ability to impart knowledge is necessary for a teacher, but this ability is inherent and cannot be taught. Therefore all training of teachers, and almost all superior education of teachers, is, again, sheer waste of public money and of individual effort. Such are the ideas evolving from Dr. Garrett's critical examination of the problem of mass education in England. They are very old ideas. Year by year they have been becoming increasingly obsolescent, so that now it is a surprise to have this demonstration that they are not yet quite obsolete. Yet there is one educational problem, becoming rapidly more insistent of solution, which, if it does not emerge from Dr. Garrett's logic, underlies his thought. When, at 11 years of age or so, all those elementary school children who have passed a proper test of fitness for further school education are appropriately dealt with, and when, on the other hand, mentally defective children and those who are very backward have already been catered for, what exactly should be done for the remainder? Among them will certainly be a relatively small number of late developers who at 12 or 14 years of age will be found to be as worthy of further school opportunity as some of those who had been previously selected. But what of the rest? What exactly is the character of the education they should receive so that they may increase in knowledge to the extent of their capacity, and their mental habits and social behaviour may continue to be influenced for good? Neither teachers nor education administrators have, as yet, fully thought out this difficult problem.

A MEDICAL UTOPIA.

IN the February number of the *North American Review* Dr. G. W. Haigh, writing under the heading of "State medicine: boon or bogy?" proposes that the medical and surgical system of the United States Navy should be the model for a State or national service for the whole nation. In his opinion the time has come for serious consideration of the institution of State service, and by State medicine he means "not a service retaining all the deficiencies of the individualistic competitive form of medical practice, such as the panel system of Great Britain or the sickness societies of Germany, but an organization based upon the economic principle of the division of labour and designed to insure co-operation in supplying a public necessity; to wit, a complete, free, in time compulsory health and accident service maintained by each commonwealth." This proposition, he holds, is not more socialistic than is the provision of education for all children; further, whereas education concerns a part of the people for a part only of their lives, health concerns all the people all their lives. Such a public service the medical profession has failed to supply at a reasonable cost, and it therefore behoves the people to supply for themselves the necessary organization. This he admits would entail acceptance of the official medical man, and would do away with choice of doctor. The people, he argues, would benefit, and so would the medical profession, who would form a corps into which all newly qualified men would enter, and be stimulated rather than stultified by so doing. After about five years' work in a position analogous to that of house-officers they would be eligible to choose a specialty. As a rule older medical men would not be obliged to continue to do work which has ceased to interest them, and which they did just as well or better earlier in their career. Medical officers of higher ranks would be relieved also of emergency and night work, so as to be better able to perform their duties of supervision, teaching, and administration. Some glaring evils of competitive medicine would also be eliminated by systematic co-operation; thus overwork and overfatigue, leading to hurry, carelessness, and mistakes, would disappear. Dr. Haigh, in short, looks with favour on the idea of a regimented State medical service. Most of us in this country would prefer to look for other ways of remedying the evils of competitive medicine.

THE WINNIPEG MEETING IN 1930.

As all the business of the Scientific Sections at the Winnipeg meeting of the British Medical Association, which begins on Tuesday, August 26th, 1930, will have to be arranged by correspondence, it is essential that its organization should be set on foot in good time. To this end the Council of the Association has appointed an Arrangements Committee, which will shortly proceed with the nomination of officers for the Sections, in each of which the Canadian Medical Association has nominated two vice-presidents and one secretary, leaving the Council in London to fill the remaining offices, including those of all presidents of Sections. The work of the Arrangements Committee will be materially assisted if it has before it the names of members of the Association who propose to attend the Winnipeg meeting, and the Medical Secretary will be glad to receive this information from those who are interested in the work of the Sections as soon as possible. It is, of course, too early to ask that members should now commit themselves definitely to attendance at the meeting; this request for names has no relation to the provision of transport, but is made solely to facilitate the work of the Arrangements Committee.

ROYAL COLLEGE OF PHYSICIANS.

THE Milroy Lectures before the Royal College of Physicians of London, on "Past and present diphtheria in England and Wales, with special reference to the London metropolis," will be given by Dr. J. Graham Forbes on February 26th and 28th and March 5th. Professor E. B. Verney will deliver the Goulstonian Lectures on "Polyuria" on March 7th, 12th, and 14th. The Lumleian Lectures, entitled "A medical review of the surgery of the chest," will be given by Dr. R. A. Young on March 19th, 21st, and 26th. Dr. F. M. R. Walshe will deliver the Oliver-Sharpey Lectures on "The physiological analysis of some clinically observed disorders of movement" on April 30th and May 2nd, and the Croonian Lectures, on "Some chemical factors in the control of the circulation," will be given by Dr. H. H. Dale, F.R.S., on June 4th, 6th, and 11th. The lectures will all be given at 5 p.m. at the College, Pall Mall East.

INFLUENZA.

As we anticipated last week, there has been a considerable increase in the number of deaths attributed to influenza, and it does not seem likely that the maximum has yet been reached. Last week's statistics again showed a disproportionately large increase in the recorded incidence of primary pneumonia in comparison with the number of deaths assigned to influenza, and there is still a consensus of opinion in clinical reports from the affected areas that the type of the disease is mild. There seems at present to be a concentration upon the north-western districts of England and the southern ports or coast towns. The great industrial centres of Yorkshire and the Midlands are less affected. The age distribution of the deaths is of the normal inter-pandemic type.

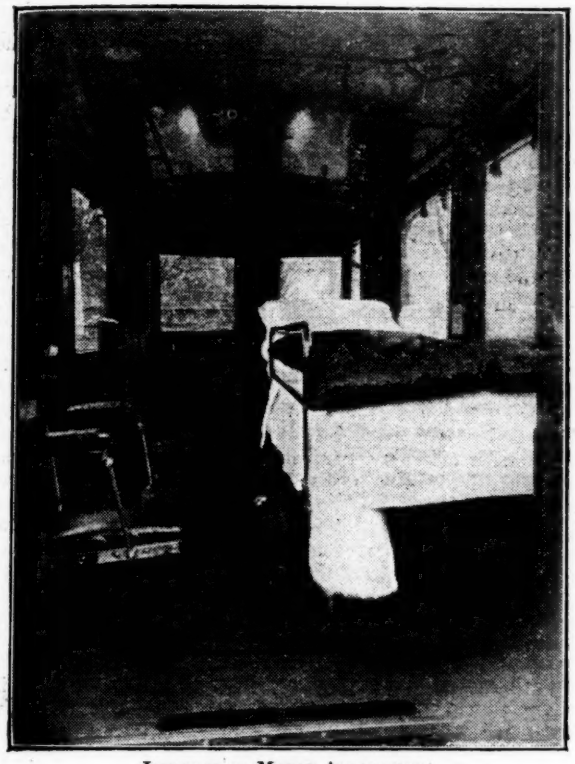
No. 125 of the Special Report Series, issued by the Medical Research Council, comprises *A Study of Intracranial Surgery*, by Mr. Hugh Cairns, F.R.C.S. It deals largely with work in Professor Harvey Cushing's clinic at Boston, where the author acted as resident assistant surgeon while holding a Rockefeller Travelling Fellowship. We hope to discuss this report in a later issue.

THE KING.

IT was announced on Friday, February 8th, that a radiogram taken that morning confirmed the clinical evidence that the condition of the lungs was now normal, and that, weather permitting, His Majesty would leave Buckingham Palace next day for Craigweil House, near Bognor. The journey through Surrey and Sussex by motor ambulance was borne very well, and, notwithstanding the severe weather of the past few days, further improvement has been noted in the King's condition since his arrival. The change to the sea coast is evidently doing good.

THE KING'S AMBULANCE.

FROM the point of view of the doctor particular interest attaches to the construction of the motor ambulance chosen for His Majesty's journey from Buckingham Palace to Craigweil House. The body of the ambulance was specially designed by Mann Egerton and Co. Ltd., of Norwich and



INTERIOR OF MOTOR AMBULANCE.

London, consulting engineers to the Medical Insurance Agency, and built by them on to a 45-h.p. Daimler chassis. The bed, which is placed on the right, is made to slide in and out of the car; should the need arise it can be turned about without disturbing the patient. For those in immediate attendance on the patient there is an armchair on the left at the head of the bed, and at the foot an upholstered seat. A dark green carpet covers the floor; there are three large windows fitted with blinds, and there are two electric lights. By means of a special electric heating apparatus and an electric fan the temperature inside the ambulance can be regulated at will. A mahogany and nickel hand-basin is supplied with water from a tank. A single swing-door, with glazed window, gives access from the back of the car. Exhaustive tests had proved this ambulance to be capable of carrying the patient in comfort while maintaining a high average speed. The accompanying illustration shows the interior as seen from behind. These ambulances are supplied by the Daimler Hire Company, of Knightsbridge, S.W.

MEDICAL TEACHING AND RESEARCH IN SHANGHAI.

THE HENRY LESTER INSTITUTE.

A SCHEME which should have an important bearing on medical research and education in the Far East has recently been launched in Shanghai. An Englishman, Mr. Henry Lester, who had spent the greater part of a long life as an architect and estate agent in Shanghai, died in 1927, and, by a will executed two years prior to his death, bequeathed the bulk of his large fortune to various schemes for the promotion of education, along British lines, amongst the Chinese of the city of his adoption. After the disbursement of certain specified legacies covering various medical and educational institutions in Shanghai, the residue of the estate is placed under the control of "The Lester Trust" in order to give effect to the directions of the testator. The trustees must always be British subjects ordinarily resident in Shanghai.

The clause in the will which will be of most interest to the medical profession is that dealing with "the establishment of an institute or institutes for the study of and instruction in the English language, of medical science, surgery, civil engineering, architecture, and other useful and scientific knowledge." The trustees have decided to separate medical science from the purely technical subjects, and to proceed at once with the erection of a dignified building, equipped on the most modern lines, for research in medicine and surgery. Dr. H. G. Earle, formerly professor of physiology in the University of Hong-Kong, has been appointed as general adviser to the trust.

Directions are given that the institute "be open to all nationalities, but especially Chinese," that not less than Shanghai taels 400,000 (over £50,000) should be expended on the building and equipment, and that it "be known as the 'Henry Lester Institute' and by no other name." The total amount of the residuary estate is still unknown, but, when all the other bequests have been provided for, it is expected that there will be funds amply sufficient to staff and endow a school containing at least six main divisions. These divisions will comprise:

1. Medicine, including Tropical Medicine and Parasitology.
2. Pathology, including Bacteriology and Immunology.
3. Physiology, including Biochemistry, Pharmacology, and Industrial Physiology.
4. Surgery, including Experimental Physiology.
5. Hygiene and Public Health.
6. Field Research and Statistics.

The heads of divisions are at present being recruited from British schools of medicine, and it is hoped that the junior posts will be largely filled by young Chinese who have been trained abroad.

Until the institute is built, equipped, and organized, the activities of the staff will be entirely confined to research; later on, it will be possible to initiate curricula for post-graduate studies in public health, tropical medicine, and surgery, and in the event of the institute becoming affiliated to the University of Hong-Kong, there will be no further necessity for Chinese students to travel thousands of miles in order to take the D.P.H. or D.T.M.

The Lester Chinese Hospital.

Another medical institution which will benefit by Mr. Lester's generosity is the Chinese Hospital, long associated with the London Missionary Society, situated in Shantung Road, at a distance of about a mile from the proposed site of the institute. The bequest of Shanghai taels 1,000,000 (£130,000), together with certain valuable properties, will be sufficient to rebuild and partly endow a hospital with accommodation for about 200 patients. The new building will be known as "The Lester Chinese Hospital," and it will be controlled, not by the Lester Trust, but by its present board of trustees. It would obviously be to the advantage of both institutions if the clinical facilities of the hospital could be utilized by the research staff of the institute, and a beginning has been made by the appointment of Dr. Gordon Thomson, F.R.C.S., head of the division of surgery in the Lester Institute, as honorary visiting surgeon to the Chinese Hospital. The public health authorities of the Shanghai

Municipal Council have also agreed to place facilities for the collection of material at the disposal of the institute.

The Lester benefaction is a sign of the times. Business and professional men who have settled and succeeded in China are not all anxious to gather their fortunes together and return to their native shores. To those who have lived longest among the Chinese the medical, educational, and social needs of the country make a strong appeal, and foreign benefactors are beginning to find that they can "cast their bread upon the waters" with confidence.

MEDICAL MEMBERS OF LOCAL PUBLIC BODIES.

A REQUEST was made in the *British Medical Journal* some months ago for the names of medical practitioners known to be serving as members of local authorities or their subsidiary public bodies in Great Britain with the object of placing this information at the disposal of the profession generally and thus facilitating co-operation among medical men in public affairs. In view of the fact that the Local Government Bills now before Parliament will be followed by extensive changes in public health organization and administration such co-operation is now more desirable than ever. The two lists of names already published—on December 8th (p. 1057) and December 29th, 1928 (p. 1190)—gave details relating to about 125 authorities in all. The following is a supplementary list of names received too late for inclusion in the earlier lists.

ENGLAND AND WALES.

COUNTY COUNCILS.

Derbyshire.—Dr. W. T. Wood, Creswell (Member of the Education, Tuberculosis, Maternity and Child Welfare, Mental Deficiency, and Blind Persons Act Committees).

Montgomeryshire.—Dr. W. H. Lewis, Llansantffraid (Chairman of the Public Health, Maternity and Child Welfare, etc., Committees; Member of the Education and Mental Deficiency Committees).

West Riding of Yorkshire.—Co-opted member of Tuberculosis, etc., Subcommittees: Dr. G. B. Hillman, Wakefield.

West Sussex.—Dr. Sidney Matthews, Crawley (Alderman; Chairman of the Public Health, Midwives, Maternity and Child Welfare, etc., Committees).

COUNTY BOROUGH COUNCILS.

Rochdale.—Dr. Daniel Richmond (Alderman; Member of the Health Committee), Dr. John Rodley (Alderman), Dr. James Melvin (Member of the Health Committee), Dr. H. G. Ramsbottom, and Dr. E. H. S. Scarr.

Wakefield.—Dr. G. B. Hillman (Chairman of the General Purposes Committee; Member of the Health, Maternity and Child Welfare, etc., Committees).

NON-COUNTY BOROUGH COUNCIL.

Hereford.—Dr. J. R. Bulman (Member of the Health, Education, etc., Committees), and Dr. J. A. Pritchard (Member of the Health, etc., Committees).

METROPOLITAN BOROUGH COUNCILS.

Hampstead.—Dr. E. Collingwood Andrews, Heath Drive, N.W.3 (Deputy Mayor), Dr. C. W. Cunnington, West End Lane, N.W.3 (Alderman), Dr. W. S. George, Finchley Road, N.W.3, and Dr. C. J. R. MacFadden, Frognal, N.W.3 (Chairman of the Public Health Committee).

Islington.—Co-opted member of the Maternity and Child Welfare Subcommittee: Dr. Eleanor Pulleine, Hamilton Terrace, N.W.8.

Westminster.—Dr. H. W. J. Steen, Warwick Square, S.W.1 (Member of the Public Health Committee).

URBAN DISTRICT COUNCIL.

Harpenden (Herts).—Dr. A. L. Hine (Vice-Chairman; Chairman, Joint Hospital Committee for St. Albans and Harpenden Urban and Rural Districts).

BOARD OF GUARDIANS.

Hampstead (London).—Dr. Mary B. Douie, Heath Hurst Road, N.W.3.

PARISH COUNCIL.

Elmton-cum-Creswell (Derbyshire).—Dr. W. T. Wood, Creswell.

SCOTLAND.

TOWN COUNCILS.

Edinburgh.—Dr. G. F. Barbour Simpson, Manor Place.

Glasgow.—Dr. James Dunlop, Dennistoun (Bailie), Dr. James Dunlop, Shettleston, Dr. Simon H. Bennett, Windsor Terrace, and Dr. Robert Forgan, Renfield Street.

Union of South Africa.

Notification of Measles in Pretoria.

DR. J. J. BOYD, who is medical officer for Pretoria, recently delivered an interesting address to the Medical Association of South Africa (B.M.A.) on the epidemiology of measles and the local preventive measures which were in force. The address was published in the *Journal of the Medical Association of South Africa* (*B.M.A.*) of December 8th, 1928. This disease is endemic in Pretoria, and for over twenty years has been notifiable in respect of the first case in a household. Dr. Boyd remarked that in most places where notification of measles had been tried it had been given up as not worth while. One of the chief arguments against it was that it was too incomplete to give any useful information as to the occurrence and distribution of the disease; a very large proportion of cases was not seen by any medical practitioner, and the parents did not report cases to any considerable extent. In Pretoria, however, a different state of things had prevailed, at least as regards the European population. Dr. Boyd was satisfied that very few cases escaped notification; measles was more readily recognized by the laity than most other infections, and about one-fifth of the cases were reported by lay persons. Another criticism raised had been that cases were reported so late in the course of the illness—not until the appearance of the rash—that action by the health department was too late to prevent the spread of the disease. While admitting that no course of action, other than serum inoculation, could prevent susceptible children who had already been in contact with the notified cases from developing the disease, Dr. Boyd said that its further extension could undoubtedly be effectually prevented if all the contacts were known and kept apart from susceptibles. Dealing with the objection that in epidemic time the number of cases became so great that the authorities could not cope with them, he said that he believed this referred to disinfection of premises, which he regarded as useless. A considerable amount of work was involved in the discovery and control of contacts, but if success followed the efforts of the health officials severe epidemic prevalence should be rare. This had been so in Pretoria in the last decade. The control of susceptible contacts was the crux of the matter so far as limitation of the spread of the disease was concerned, and the measures in use in Pretoria were chiefly aimed at such control. Dr. Boyd showed that in the twenty years from 1907 to 1927, while there had been comparatively little reduction in the average annual case rate among children, the death rate had declined substantially; among children under 5 it was 1.38 per 1,000 in the quinquennium 1907–12, 2.25 in 1912–17, 0.29 in 1917–22, and 0.26 in 1922–27. A considerable fall in the death rate from measles among older children had also been recorded. Such a fall might be due to one or more of the following causes: to a lessened incidence of measles in children under 5, to greater care of children suffering from the disease, or to a reduced virulence of the disease. Since the introduction of notification great prominence had been given to the disease, and parents, recognizing the serious view of it taken by the health department, had been much more careful. In other South African towns the figures, in a number of cases, showed no striking decrease, and it appeared, therefore, that some factor other than a simple fall in virulence had probably come into play in the reduction of the death rate from measles and its sequels in Pretoria. Dr. Boyd said that he was the more inclined to attribute a considerable proportion of the fall to the adoption of notification and the control and supervision of cases when he found that similar results had followed the adoption of these procedures in certain other places.

Epizootic Among Rodents.

Plague has for many years been enzootic among the veld rodents of this country. Waves of the disease periodically pass over the country causing a very high mortality among the gerbilles which occur over the greater part of the Union. The area involved is too vast, and the human

population generally too sparse, to render efforts for the complete eradication of gerbilles practical. Rodent-free barriers have been thrown in front of epizootic waves at various parts of the country to prevent them reaching thickly populated areas. For some years such a barrier has been successfully maintained some two hundred miles north of Capetown between the coast and a range of mountains which runs parallel to it, mountainous regions being everywhere free of gerbilles. Apart from maintaining such rodent-free belts, the Government Health Department keeps a watchful eye on rodent health throughout the Union. Rodent surveys are continually being conducted by "rodent officers," and any unusual rodent mortality is immediately investigated. Such investigations sometimes reveal the fact that other organisms than *B. pestis* are responsible for extensive rodent mortality. Recently a very fatal epizootic occurred in the De Aar area, a region about five hundred miles inland, in which enzootic plague infection was known to have existed since 1925. Large numbers of gerbilles were reported as moving across the country, and it was at first supposed that they were fleeing before a wave of plague infection advancing from the west. Some of the animals appeared sick, and many were found dead. Departmental investigation showed that lay statements, that a vast army of rats was advancing on the town of De Aar, were exaggerated. Rodents had recently multiplied rapidly over an area extending some five to ten miles west of De Aar, and under the influence of the epizootic were invading the town in considerable numbers from that side. Many recently dead animals were picked up. These carcasses, however, do not remain lying on the veld long. Usually they are promptly picked up by white-breasted crows, which have flocked to the area in great numbers. Carcasses were examined bacterioscopically and inoculation tests made on healthy laboratory animals. Everything seemed to point to the condition from which the gerbilles were dying being plague, but the laboratory tests were inconclusive, and *B. pestis* could not be recovered.

Meanwhile, on a farm in Petrusville, to the north of De Aar, there occurred two fatal cases of plague, one of bubonic type, with terminal pneumonia, the other of pneumonic type. The diagnosis of these cases was confirmed by laboratory examination. The cases were attended, and later the *post-mortem* examinations performed, by Dr. D. M. Maciver, district surgeon of Petrusville. Shortly afterwards he became ill, showing a high temperature, and buboes formed in his right axilla. A provisional diagnosis of plague was made, and later confirmed. In the Government bulletin published on November 24th, 1928, his condition was reported to be improving, and by the beginning of December he was definitely convalescent. Localized mortality in veld rodents continued during December in De Aar and neighbouring districts, such as Victoria West and Kenhardt, but the results of laboratory investigations as to the cause of this morfality remained inconclusive. The deputy director of the South African Institute for Medical Research, who had been conducting the bacteriological examinations in Johannesburg, himself went into the affected areas to investigate the matter in conjunction with the officers of the Union Health Department. He collected material for further examination, and returned to the Institute to complete the investigations. Finally, it was definitely established that, though the human cases which occurred in Petrusville were certainly plague, the epizootic which was causing the heavy mortality in veld rodents in De Aar and neighbouring districts was not plague. An organism has since been isolated repeatedly from the heart blood and organs of dead gerbilles. This organism is Gram-negative, bipolar staining, and conforms morphologically and culturally to the Pasteurella group. It is capable of killing gerbilles, mice, and rabbits by scarification, and the same organism has been recovered from the organs of these dead animals. Moreover, the *post-mortem* appearances and the organism found in smears made from organs of healthy animals killed with this culture present a picture identical with that seen in gerbilles found dead in the De Aar district. It is very similar in its cultural and biological characteristics to *Pasteurella avicida*, the causative organism of fowl cholera. Further investigation is being carried out to establish or refute this. The Pasteurella group of organisms have frequently been responsible for epizootics among rodents in various parts of the world. As this organism is capable of killing gerbilles, rabbits, and mice on scarification, the scarification test, hitherto held to be diagnostic of plague, can now no longer be made on any of these animals. So far it has not been possible to kill guinea-pigs by scarification, but a certain percentage of guinea-pigs have been killed by subcutaneous inoculation and the organism again recovered from the organs. This is a further point in favour of scarification of guinea-pigs as the safer biological test for plague, but it is always advisable to confirm this test by parallel cultural reactions.

Pellagra in Durban Prisons.

In spite of the fact that the staple diet of the large Bantu population of the Union consists of maize or mealies, pellagra, which in other countries has been closely associated with such a diet, has been very rare in this country. This diet has often been productive of scurvy. When the native leaves his territories and commences hard work on the mines, the diet which met his needs in the kraal no longer suffices. His diet has to be supplemented with foods with a high vitamin C content. On most of the mines this is provided by a regular ration of germinated beans, vegetables, and meat. A comparable position with regard to pellagra now appears to have arisen in the prisons of Durban. Native prisoners who on admission to gaol are free from symptoms are liable to develop pellagra under prison conditions, which include a deficient, monotonous diet and hard labour, often on harbour work in the blazing sun. Careful Government and other inquiries over many years have shown the almost entire absence of pellagra from the Union outside Natal. Only five cases have ever been recorded from any of the other provinces. In Natal the history of pellagra has been interesting. During the Zulu rebellion of 1906 some 3,000 prisoners were taken. Dr. L. G. Haydon, who was in medical charge, picked out from among them about 150 typical pellagrins. The bulk of these prisoners had, by force of circumstances, been detained in batches in different parts of the country under more or less unfavourable conditions of food and housing, previous to their concentration at a station under Dr. Haydon's medical charge. During the progress of the rebellion it is probable that the majority of the native rebels in the field had to subsist almost entirely on an inferior quality of mealies. Between this occurrence and 1927 only five cases of pellagra appear to have been diagnosed in Natal. Attention was directed to the disease at the end of 1927, when seven pellagrins were discovered in the three Durban prisons. It then appeared that cases among natives, particularly in Northern Natal (which is still referred to as Zululand) were not uncommon, but the condition had not been recognized.

The outbreak in the prisons continued throughout 1928. Between December, 1927, and March, 1928, there occurred thirty-eight cases, but two of these were suffering from pellagra on admission to gaol. At this stage the Durban gaol diet for short-sentence prisoners, among whom most of the cases were occurring, was supplemented. Five more cases occurred in April, but during the three winter months there were only two new cases. During the following three months fourteen more cases occurred. In December there was only one, and none have occurred during January, 1929. Prison authorities are in a difficult position. On the one hand they are not infrequently accused of pampering the native prisoners, who probably receive in the prison a diet considerably better than they are accustomed to in their kraals; on the other hand the minimal requirements for maintaining health are an economic necessity. The precise dietetic deficiency which produces pellagra has not yet been established, and it is probable that other factors than diet are contributory, such as work in intense sunlight. In these circumstances the prison authorities would appear to be faced by the necessity for providing an almost luxurious prison

diet and less labour. Fortunately for them contributory conditions for the production of pellagra occur only in the one province of Natal; for with the same diet scales throughout the Union only one case has been recorded in a prison outside Natal. It is therefore only in this province that a supplemented diet has become necessary.

The present tailing-off of the outbreak may be associated with the introduction during November of a ration of good white beans for all prisoners. The matter is being investigated by the Union Health Department, and is being considered along with a more general survey of health conditions in the native territories.

Rabies in South Africa.

Plague is not the only disease enzootic among the wild fauna of South Africa. There has long been a strong suspicion that rabies existed among the yellow mongoose in certain areas, and this has at last been confirmed by pathological examination. During the past eight years at least twelve human deaths occurred with symptoms indistinguishable from rabies, following some weeks after bites by mongoose, wild-cat, or dog. These cases occurred over widely scattered areas in the north of the Union and separated by considerable intervals of time. Most of the cases occurred in children on farms in remote localities and, as a rule, the facts were not brought to the knowledge of the Union Health Department until the victim was dead and buried. As soon as the Union Health Department became aware of any such case investigations were instituted, but until last month this invariably occurred too late to secure satisfactory pathological material; putrefactive organisms had taken possession of the brain and the biting animal had long since been buried or thrown into the bush, and its associates were lost sight of. After each occurrence the magistrate and other officials of the area were warned of the danger, but there was no recurrence, each successive case occurring in an area remote from the previous one, where the medical and police authorities were not on the alert, although annual health reports and other broadcast circulars had mentioned the danger and requested immediate notification to the department. However, last November two European boys in the Wolmaransstad district, south of Klerksdorp, were notified as suffering from rabies. One died on November 20th, and the other three days later. Each of these boys was about 12 years old, and had, on October 30th, been bitten on the fingers by a yellow mongoose, locally known as a red meercat (*Cynictis penicillata*), which they had attempted to catch. As in all previous similar experiences no particular notice was taken of the matter at the time. The yellow mongoose is fairly common on the veld and instances of children or adults being bitten by this animal are not unusual. On November 17th both boys developed pains in the affected hands, both showing typical symptoms of rabies, one considerably more rapidly than the other. *Post-mortem* material was rushed up to Johannesburg by motor car, and examinations were made there by the South African Institute for Medical Research, and in Pretoria by the Veterinary Research Laboratory. The immediate microscopic examination of the material at the Medical Research Institute gave negative results, but inoculation tests subsequently performed at the Institute and the Veterinary Research Laboratory proved, however, that the clinical diagnosis was correct. If infection among yellow mongoose is widespread, as all the collected evidence appears to indicate, it is difficult to account for the fact that no epizootic prevalence has occurred among dogs or other animals. The official Government bulletin suggests that the strain of infection may be one of low virulence or diffusibility; this aspect of the matter is being further investigated. The general public has been warned of the danger by bulletins in the daily press, and urged to take no avoidable risk of being bitten by any wild or domestic animal. Instructions as to cauterization and (should there be any suspicion that the biting animal was rabid) vaccine treatment have also been given. Supplies of antirabic vaccine are available at the Government Health Laboratory, Capetown, and at the South African Institute for Medical Research, Johannesburg.

England and Wales.

Rating of Voluntary Hospitals.

MUCH concern has been caused among administrators of voluntary hospitals in England and Wales by the effect of the reassessment of their properties under the Rating and Valuation Act, 1925. The general result has been to increase considerably the assessments, and therefore the rates, of the hospitals, and there has consequently arisen a movement to secure some measure of amelioration. This, it is suggested, might take the form either of the general de-rating of hospitals or of provision for their assessment on a preferential and uniform basis. In order to elucidate the precise effects of the change and to obtain a clear expression of the attitude of the hospitals, an inquiry was initiated some months ago by the Central Bureau of Hospital Information, which addressed, at the end of last November, a questionary to 679 voluntary hospitals in England and Wales. Replies from 221 hospitals, containing 45 per cent. of the total beds, were received by the end of the year, and an analysis of their contents has now been published by the bureau.[1] It is estimated that the effect of the revision will be to raise the average assessment per patient bed from £1.56 to £2.36, involving an increase in the aggregate annual rate burden of the provincial hospitals from £44,000 to £66,000. In a number of cases the hospitals had not, in replying to the bureau's questionary, yet learnt their revised assessments, and so were ignorant of the exact effect of the Act upon their position. Of the 221 hospitals making replies, 51 (mostly influenced by the circumstance mentioned above) did not express any opinion on the subject of joint action, while 3 were definitely opposed to it; of the remainder, who favoured joint action, 107 considered that the object in view should be to secure the de-rating of hospitals, and 60 held that the aim should be to obtain assessment on a preferential and uniform basis. The effect of de-rating would be to relieve the provincial voluntary hospitals of an annual payment of approximately £66,000, but the effect of assessment on a preferential and uniform basis would depend, of course, on the datum line selected; the adoption of this measure might involve an increased assessment in certain cases. The memorandum estimates, however, that an assessment based on the figure of £1 per patient bed would involve increases in 19 per cent. of the provincial hospitals, containing 12 per cent. of the total beds, so that with such a basis a large majority of the hospitals would be either unaffected or favourably affected. Accompanying the memorandum are several interesting summaries of information based upon the replies to the bureau's questionary, in which a most striking feature is the wide variation in the assessments per patient bed, both before and after revision. It is pointed out that in several cases where the new figures are high and have been accepted without appeal, the hospitals receive from the local authorities substantial subscriptions under the Public Health Act, 1925. Examples are given of the scales adopted by various local committees, in accordance with the recommendations of the Central Valuation Committee, upon which to base assessments of all hospitals within their areas; they reveal an amazing lack of uniformity in the interpretation of these recommendations, and emphasize the need for a complete review of the system as it affects the hospitals. In one area the basic scale for hospital assessment is 7s. 6d. per patient and staff bed; in another it is £5 per patient and staff bed; in a third it is 25 per cent. of the surveyor's valuation. Several hospitals base the claim to preferential assessment on the ground that their work in a large measure directly relieves the rates, while others argue that they should, like the churches, be given total exemption. In some cases it has been stated that as the hospitals concerned have some beds for paying patients, they cannot expect de-rating in respect of such beds, and therefore favour preferential assessment. Several interesting precedents in support of the special claim of the hospitals are quoted. In Glasgow,

[1] Memorandum No. 6: Central Bureau of Hospital Information, 19, Berkeley Street, London, W.1. Twelve copies, 2s. 6d. Single copies, 4d. post free.

under a local Act, it appears, all voluntary hospitals are exempt from municipal rates, and the corporation is now endeavouring to secure the extension of this privilege to cover education, poor, and lunacy rates. In Edinburgh voluntary hospitals are also free from the burden of municipal rates, while in Halifax the infirmary and other charities are charged 10 per cent. only of the amount chargeable on the full assessments. The memorandum deserves the consideration not only of those directly concerned with voluntary hospital administration, but also of all who, as ratepayers and electors, are ultimately responsible for the attitude of their agents—the local authorities—towards the hospitals.

A Hospital Staff Fund.

An interesting measure was adopted at the annual meeting of the North Walsham (Norfolk) Hospital Saturday and Sunday Fund on January 23rd, when it was decided to offer a grant of £40 to the local cottage hospital to form the nucleus of a staff fund, and thus assist in meeting the out-of-pocket expenses of medical practitioners giving their services to the hospital in an honorary capacity. Dr. C. H. W. Page, who presided at the meeting, explained the object of the grant, saying that the general public was not fully aware of what had happened in connexion with the hospitals. He pointed out that owing to the extension of the class who sought aid at the hospitals and the introduction of complex forms of treatment involving institutional attendance, a great deal of extra work had been put upon the doctors, work which they, on joining the staff, undertook to carry out free. Doctors were extraordinarily proud to give their services to the hospitals; they wished to continue to give that aid, but the public was a little forgetful in allowing additional work to be placed on them at the expense of their private practices. They had four doctors on the staff of the North Walsham Hospital, and several on the consulting staff. Occasionally they had to ask a consultant to attend, and if he did so he was expected to pay his own motoring expenses and to treat the patient free. He was, of course, actually out of pocket. The staff fund would be for the purpose of making some allowance for such expenses, and others as well as doctors who gave their services might be brought within its scope. On his suggestion, therefore, the committee of the fund recommended the members to ask the local hospital to accept £40 as a nucleus for such a staff fund.

Scotland.

Motor Accidents in Scotland.

THE question of hospital cases arising from motor accidents is raised in the annual report of the Aberdeen Royal Infirmary. It is pointed out that these differ from the ordinary cases in that many of the patients have no connexion with the districts served by the hospitals in which they are treated, and that many of them require much greater length of treatment than the ordinary surgical cases for which the hospitals were originally intended. It has been estimated that during the year 1927 approximately 26,000 in-patients and 39,000 out-patients were treated in the provincial voluntary hospitals as the result of motor accidents, and that their cost to the community was approximately £230,000, of which not more than £26,000 was received by the hospitals either from or on behalf of the patients. It is suggested that legislation is necessary to enable hospitals to recover the cost incurred and to bring about compulsory insurance by motorists against third-party risks.

Glasgow Royal Infirmary.

The annual report of the managers of the Glasgow Royal Infirmary shows that during the past year 16,488 patients were treated in the wards, the average daily number of patients in the Infirmary being 783.8, and the average period of residence per patient 17.4 days. Out-patients numbered 97,258, with a total attendance of 327,913. The ordinary revenue for the year was £87,815, and the total ordinary expenditure £122,178. Extraordinary receipts had amounted to £26,746, and as the total extraordinary payments totalled only £2,510 there was a surplus of extraordinary receipts of £24,236. On the year's working there was thus a shortage of £10,127, which has been debited to capital account, and for the first time in many years the Infirmary has required to borrow from the bank in order to enable it to carry on. Through the generosity of Mr. William C. Teacher of Cove, Dumbartonshire, who has given £10,000 for the purpose, a lectureship in bacteriology has been founded at the Infirmary.

Victoria Infirmary, Glasgow.

The annual report of the Victoria Infirmary, Glasgow, shows that during the past year the number of in-patients treated was 6,580. There were, in addition, 4,775 cases of minor surgical ailments treated as out-patients, and 1,277 for diseases of the nose and throat. In the electrical and x-ray departments the total number of attendances was 23,254, a daily average of 75. At the Bellahouston Dispensary, connected with the hospital, the number of attendances was 48,223. The expenditure, including not only that of the Infirmary, but also of the Bellahouston Dispensary and the Convalescent Home at Largs, for the year was £57,595, while the income derived from subscriptions was £27,563. The subscribed income, together with the revenue from investments, fell short of the expenditure by £8,835, which had to be made up from legacies and special donations. As the extraordinary income was insufficient to meet the extraordinary account, the sum of £22,464 was drawn from capital. The endowment fund of the hospital now amounts to £173,719, having been increased during the year by £19,901.

New Falkirk Infirmary.

At a meeting of Falkirk Dean of Guild Court on February 7th plans were approved for a new infirmary at Falkirk. The scheme is to cost £100,000 and is to provide at the outset a hospital of 152 beds, with capacity for extension. Twelve beds will be available for paying patients. In the maternity section twenty-four beds will be provided, and in the isolation block twelve beds. The two latter blocks will be managed in co-operation with the public health authorities of Falkirk, Grangemouth, and Denny burghs, and of the Eastern District Committee of Stirling County Council, by whom the capital outlay involved in their erection will be borne. The hospital has been so designed that the administrative accommodation provided and the arrangements for extension of wards will admit of a large and easy increase of capacity as the occasion demands.

Ireland.

Influenza in Dublin.

AT the suggestion of Dr. M. J. Russell, medical officer of health for the city of Dublin, most of the elementary schools in the metropolis have been closed to help to check the spread of influenza. Arrangements are being made to continue the distribution of free meals to the children. The number of deaths from influenza registered for the week ending February 2nd was thirteen, as compared with four for the preceding week, and one for the week before that. Of these thirteen deaths, five persons were over 70 years of age, one was 60, and the remainder were all adults except one, a child of 2 years. Among the precautionary measures taken is the circularizing by the Public Health Committee of places of entertainment in the city, urging care in carrying out all sanitary regulations and in the provision of adequate ventilation. Dr. Russell has pointed out that it would be a very serious thing for Dublin if influenza occurred in epidemic form, owing to the fact that more than a quarter of the population live in overcrowded one-room tenements, and that it is impossible in such circumstances to take the recognized measures necessary to combat the spread of the disease. He emphasizes the importance, in prevention of the disease, of efficient ventilation and good nourishing food, neither

of which can be secured by a large proportion of the people in congested areas, who, from unemployment or other causes, are in a state of semi-starvation.

Down Mental Hospital.

In the report of his inspection of Down Mental Hospital, Northern Ireland, Dr. Patrick, of the Ministry of Home Affairs, states that at his inspection on December 5th, 1928, there were on the books of the institution the names of 766 patients. Of the deaths within the year, 50 per cent. were due to cardio-vascular disease, in some cases associated with other conditions; there were seven cases of tuberculous disease, and four of general paralysis. In 50 per cent. of the deaths *post-mortem* examinations were made. No cases of zymotic disease occurred. Eight serious casualties were recorded, four being fractures of bones, of which two were of the femur; one case was caused by the patient being pushed off a seat by another inmate, and the other by a fall during a struggle in a day-room. Three patients escaped, but were all brought back after a few hours' absence. Ninety-eight patients returned as epileptic and suicidal were kept under special observation. The report states that the appearance of the patients was satisfactory, and that no reasonable complaints were made. Over 57 per cent. of the patients were usefully employed, and there was ample provision for recreation and entertainment. The premises and offices were found to be clean and in good order in all respects; the workshops were satisfactory, and the work performed appeared to be excellent.

Correspondence.

ENLARGEMENT OF THE PROSTATE.

SIR,—I am obliged to Mr. Cyril A. R. Nitch for his kindly response (February 9th, p. 264) to my comment on his article on enlargement of the prostate. He dispels my doubts as to his actual procedure, and I understand now that he avoids the rectal finger in prostatectomy. My difficulty was pardonable, for he recommended Freyer's operation, in which it is essential to use a rectal finger.

For the method of haemostatic suture and ligature in suprapubic prostatectomy I should be the last to claim perfection; but my experience has been—and I do not think I am alone in this—that it is the most efficient method in use.

In regard to the necessity for exposure and inspection of the bladder base and prostatic cavity, it seems a pity to neglect a method so easily applied and so certain when the way for it has already been prepared by a long incision. I do not myself feel safe unless I have had a look, and the more I see of post-prostatectomy cases that are brought to me for reconditioning the less I like touch as opposed to sight in the original operation.

However, Mr. Nitch's experience is so mature that I must refrain from further comment beyond saying I hope that the younger men will not be deterred from trying what I regard as a more reliable method.—I am, etc.,

London, W.1, Feb. 11th. JOHN THOMSON-WALKER.

SIR,—Some years ago I ventured to suggest in your columns (1923, vol. i, p. 259) that Freyer's operation sufficed for the average case of enlarged prostate, and was preferable to the so-called "open" operation; and, further, that, in removal of the gland, "many urologists . . . have become increasingly partial to the two-stage method." For the latter statement I was taken to task by a leader of genito-urinary surgery, who scouted the idea for the simple reason that he "had not heard" of it before.

It was pleasing, therefore, to read in Mr. Cyril Nitch's admirable address on January 26th (p. 139) some confirmation of these views. Quoting the figure of 20 per cent. as roughly the percentage mortality of prostatectomy in London hospitals, Mr. Nitch added "there is no doubt that its gross mortality would be greatly diminished if the two-stage operation were more generally adopted." Few surgeons to-day will be prepared to cavil at his statement; equally few will deny that in the two-stage operation it is undesirable to open up cellular planes and disturb the adhesion of the bladder to the abdominal wall by the free incision and exposure of an "open" operation.

I would submit, then, that prostatectomy after preliminary cystostomy is best and most safely performed bimanually—that is, after the method of Freyer, with the finger in the rectum. Recently objection has been taken to this position of the finger, which undoubtedly facilitates enucleation of the gland. The bogy is sepsis, and a reference typical of many in its warning appears in Ogilvie's *Recent Advances in Surgery*: "the use of a finger in the rectum to guide enucleation has been entirely abandoned owing to risks of sepsis." One must take leave to doubt whether this assertion will attain the importance of a fact.

Of evidence in support of this danger of sepsis there is none, nor is any likely to be forthcoming, for I believe the risk of infection from the rectum is negligible if common-sense precautions are taken. I have always relied upon the protection afforded by a second glove on the hand of which a finger is engaged in the rectum. After enucleation is complete and the finger withdrawn, the outer glove is easily peeled off by a nurse. The protection it affords is adequate for all save the theorist, and the quality of recovery after Freyer's technique I have found to compare favourably with the results of the "open" operation.

By most surgeons, I think, the latter is reserved for cases of "fibrous" prostate, where enucleation is impossible or fraught with danger, and removal under vision obviously indicated. It is by no means a new method. So long ago as 1907 Mr. Rutherford Morison advocated a wide exposure of the bladder base with removal of the prostate under the eye; of recent years the method has been rediscovered and practised both in this country and America.—I am, etc.,

Ashton-under-Lyne, Feb. 4th. GERALD RALPHS.

SIR,—All urologists will be glad to hear of such important first-hand evidence of the value of the treatment of enlarged prostate by diathermy as that experienced by "G. A.," who, in your issue of February 9th (p. 265), writes as both a medical practitioner and a patient. As the doctor himself says, information of this kind is more precise and its interpretation more scientific than that obtainable from a patient without medical knowledge.

In congratulating the patient on the happy result obtained, I would like to add that even in London the line of treatment followed in his case is firmly established as the proper method of dealing with certain cases of prostatic obstruction. On the other hand, it is of equal importance to remember that there is a considerable proportion of cases in which the forage method is unsuitable and is certain to be unsatisfactory. Although the case of "G. A." is not apparently one of these, his letter wrongly gives the impression that the treatment which he was not recommended to have in London, but which he received with such benefit in Paris, is not practised by urologists on this side of the Channel. In making it clear that this is not so, I hasten to add that an attempt to deal with the wrong kind of case by coagulation necrosis rather than by prostatectomy may have the most serious consequences for the patient.—I am, etc.,

London, W.1, Feb. 11th. H. P. WINSBURY WHITE.

NOSE-BLOWING AND ACUTE MASTOIDITIS.

SIR,—During the present epidemic of influenza an alarming number of cases of acute mastoid disease is being reported from schools. This complication, with its grave possibilities, is, I feel sure, due to the polite but unnatural habit of the vigorous use of the handkerchief during the catarrhal stage, whereby secretion is forced up the Eustachian tube to the middle ear. The alternative to this procedure requires no description.

As an instance of this mode of spreading infection from the nasopharynx I can recall the history of a small outbreak of acute mastoid disease in a girls' school last year. Investigation definitely traced the outbreak to a nose-blowing competition held as a dormitory amusement.—I am, etc.,

London, W.1, Feb. 10th. BRUCE WILLIAMSON.

SINUSITIS AND ILL HEALTH.

SIR,—One or two articles have recently appeared in your columns relative to sinusitis as a cause of ill health, and they may do much good by bringing this matter into more prominence. In 1925 I published some observations from a series of cases attended at St. Vincent's Hospital, Melbourne, and the rather startling fact was elicited that 25 per cent. of the medical out-patients were suffering from chronic sinusitis—that is, they had a yellow post-nasal discharge accompanied by the usual symptoms of headache, frequent colds, and stuffy nose. It does not matter whether organisms gain entrance from a tonsil, pyorrhoeal pocket, root abscess, or sinus. The organism is the same, and the effects are the same; it is simply another point of entry. These infections are more often than not multiple, so it is useless to clear up the teeth and the throat and to leave the nasal infection.

The idea of a relationship between infections and goitre is gradually gaining ground. In many cases of exophthalmic and toxic goitre, when the tonsils have been removed without improvement, it will be found that the patients have had nasal infection which has been overlooked.—I am, etc.,

Melbourne, Dec. 19th, 1928. SYDNEY PERN.

THE CIRCULATION UNDER THE SPHYGMOMANOMETER CUFF.

SIR,—In your issue of February 2nd (p. 191) Dr. Harrington Sainsbury tries to establish by inference what I thought was long since proved by experiment—namely, that colloids are practically incompressible. It must be well over a quarter of a century since the late Sir Benjamin Ward Richardson submitted brain and muscle tissue to a pressure of over a ton to the square inch in the hydraulic press of Evans, Lescher, and Webb, Liverpool, and found that they were incompressible, but when he added about 20 per cent. of sodium chloride to the muscle an enormous amount of muscle juice was squeezed out, leaving a tough leathery mass behind. Richardson inferred that salts in the blood, such as urea, etc., were necessary for the excretion of urine. His experiments were published in *The Asclepiad*, but writing from abroad I cannot give a reference to the date. However, I think it highly probable that a presentation copy may be found in the Library of the Royal College of Physicians.

Although blood, like other colloids and water, is incompressible, yet being a liquid it will always move from a higher to a lower pressure level, and it always transmits a pressure equal to that by which it is itself compressed. With the armlet it is difficult or impossible to raise the capillary pressure to that of the arteries, therefore the blood in the compressed artery will move on to the distal capillaries.

In the Valsalva experiment one can shut out the blood from entering the thorax, but here one is only dealing with the venous pressure, and an intrathoracic pressure of a little over 100 mm. of mercury is sufficient to do this. Fortunately this experiment cannot be carried out for any lengthy period. It will require something more than Dr. Sainsbury's inference to convince me that the brachial artery remains full when submitted to a pressure sufficient to obliterate the pulse at the wrist.—I am, etc.,

Cannes, Feb. 5th. JAMES BARR.

PRIMARY CARCINOMA OF THE BREAST TREATED WITH RADIUM.

SIR,—Published statements as to the results obtained in treating carcinoma of the breast with radium have hitherto been very few, and Dr. Roy Ward's article in the *British Medical Journal* of February 9th (p. 242) is therefore to be welcomed. I should like, however, to encourage Dr. Ward to make a very much fuller statement as to the work done at the Radium Institute than he has seen fit to give us.

Mr. Ward refers to the pioneer work which has been carried out; but although several methods of treatment are mentioned, I cannot find any direct statement as to what treatment the patients at the Radium Institute actually received. The value of the article is therefore limited, since it does not contribute to the advancement of technique.

The treatment of recurrent carcinoma of the breast by means of buried radium needles was begun by the Surgical Unit at St. Bartholomew's Hospital in July, 1922, and the first primary carcinoma was treated by this method on August 1st, 1924. So far as I know this method had never been systematically used before.

Again, Dr. Ward's statistical summary, although it gives 164 and 469 as the numbers respectively of primary and recurrent carcinomas treated, gives no information as to the results obtained in these two categories *separately*.

The work on this problem, begun at St. Bartholomew's Hospital nearly seven years ago, tried first the effect of radium on recurrent carcinoma only. The local results were excellent, but the patients' lives were scarcely ever prolonged, owing to the fact that the disease had already been disseminated to other parts of the body. The treatment, on the other hand, of primary carcinoma has proved, during the past four and a half years, to be a very different affair, and as time passes a favourable opinion is being formed. It is possible, therefore, that the results obtained in treating primary carcinoma of the breast at the Radium Institute may also have been good.

Many other points in Dr. Ward's article might also be discussed, but I should like to limit this letter to asking him to publish the facts as to the figures and the technique.—I am, etc.,

London, N.W.1, Feb. 8th. GEOFFREY KEYNES.

VACCINATION IN THE LIGHT OF RECENT EXPERIENCE.

SIR,—Referring to the discussion on this subject which took place at the meeting of the Section of Epidemiology of the Royal Society of Medicine on January 25th,[1] I venture to doubt whether "alastrim" has been proved to be such a stable variant of small-pox as some of the speakers supposed. According to Dr. Rajchman it made its appearance in England in 1919. But the late Dr. J. C. McVail pointed out in the Milroy Lectures for that year that two sorts of small-pox had been prevalent in England since about 1902—a severe form in London, and a milder form in the provinces. The fatality of the mild form was 6 or 7 per cent., of the severe, from 12 to 25 per cent. A very notable fall in the provincial fatality occurred in 1921, when it was only 1.4 per cent. Since that year it has dropped still lower. Is the present-day mild small-pox ("alastrim") a direct descendant of Dr. McVail's mild, provincial form, or is it a later imported variant? And if "alastrim" is a stable variant, was Dr. McVail's mild form also a stable variant? I observe that Dr. Monckton Copeman is reported in the account of the discussion given in the *Journal* to have stated that the "alastrim" he saw in 1903, in and about Cambridge, was of a more severe type than in most of the recent outbreaks. It appears, therefore, that during the past twenty-eight years there have been present in this country, at one time or another, two, if not three, varieties of mild small-pox, besides the classical more or less severe form. It is interesting to note that a similar question of identity of disease has arisen during recent years in the cases of typhus and scarlet fever.

Professor Ledingham is reported (in the *Journal*) to have said he thought "that sufficient consideration had not been given to the possibility that the virulent form of small-pox had been somewhere incident alongside the alastrim, but without definite transitions." I quite agree with his opinion. So far as I am aware the two forms have not, in this country, been prevalent together at the same time in the same place. It would be a crucial test

[1] *British Medical Journal*, February 2nd, p. 205.

for those who believe "alastrim" to be quite a different disease from small-pox, to place cases of each disease together in the same ward of a hospital to observe whether patients suffering from the one became infected by the other.

I note that in No. 2, February 15th, 1928, of the *Monthly Epidemiological Reports*, issued by the League of Nations, it is stated that "small-pox of severe type appeared in June, 1927, in Northern Rhodesia, where ordinarily only the mild Kaffir-pox is met with. During the first twenty weeks of 1927, 140 cases with only four deaths were reported, giving a case mortality rate of 2.9 per cent.; between the twenty-first and the fiftieth week of that year there were 856 cases and 170 deaths, giving a case mortality rate of about 20 per cent." The questions arise, Was Kaffir-pox (amaas) replaced by severe small-pox, or did the former change into the latter, or did the two run side by side? Perhaps the report of this discussion will be the means of eliciting information on this point. According to the latest returns small-pox has become less frequent and less severe again in Northern Rhodesia. With this history before us we should not assume that the present mild form in England may not at any time become more severe or be replaced by a more dangerous form.—I am, etc.,

Hemingford Abbots, Hunts, Feb. 5th. E. W. GOODALL.

TORSION AND STRANGULATION OF A HYDATID OF MORGAGNI.

SIR,—In the *Journal* of January 26th (p. 144) Mr. D. A. Abernethy records a case of torsion and strangulation of a hydatid of Morgagni in a woman, causing symptoms like a mild appendicitis, and asks if any similar cases have been encountered but not recorded. I have met with one such case, which was more severe in its symptoms than that of Mr. Abernethy, and his communication makes me feel that perhaps I have been remiss in not publishing it before this.

The patient was a young married woman, from five to six months pregnant, who was sent into Kirkcaldy Hospital in a state of collapse. The history was that some eight days previously she tripped going up a stair, and the fall was immediately followed by pain in the left lower abdomen, a feeling of faintness, and vomiting. She was put to bed, and gradually recovered after a day or two. The pain and sickness, however, still persisted, and she had once more to take to her bed, where, despite symptomatic treatment, she steadily became worse, and was ultimately sent to hospital by Dr. Ramsay Wight of Leslie, with a provisional diagnosis of concealed accidental haemorrhage. At no time was there any vaginal bleeding. On admission to hospital she was profoundly blanched, felt very sick and faint, and had a pulse rate of 130 per minute. She was in this condition when I saw her an hour later, but the pulse rate had gone up to 140. She was a thin woman and the abdominal wall was not rigid. Slight pain and tenderness were complained of over the left lower quadrant of the abdomen, but otherwise abdominal and pelvic examination revealed nothing abnormal. The pregnancy appeared to be a normal intrauterine one of five and a half months; the shape and consistence of the uterus and the absence of any tenderness over it did not substantiate the diagnosis of accidental haemorrhage, and, moreover, the foetal parts were palpable with an unusual degree of ease. I was, frankly, quite unable to form any positive diagnosis. The patient's condition suggested internal haemorrhage, but there were no physical signs of any collection of blood. I suggested, as a very tentative diagnosis, the possibility that she had perhaps ruptured her uterus, and as the patient had been gradually becoming worse I decided to explore the abdomen. While the necessary preparations were being made, Mr. F. E. Jardine, consulting surgeon to the hospital, happened to arrive, and I asked him to examine the patient, but did not tell him of my "diagnosis." After careful examination Mr. Jardine told me that he could suggest no positive diagnosis, but he thought that possibly she might have ruptured her uterus! We opened the abdomen together and found a normal pregnancy, no sign of any ruptured viscus in any part of the abdomen, nor any bleeding. But below the extremity of the left Fallopian tube there was a hydatid of Morgagni of the size and of the colour of a black-crimson cherry, hanging by a thin and very much twisted stalk. I removed this, after tying a piece of fine catgut round the base of the pedicle, and we closed the abdomen. The patient made a steady and uninterrupted recovery, the pregnancy continued without interruption, and Dr. Ramsay Wight informs me that she was delivered of a healthy child at full time, the placenta showing no sign of any previous disease or separation.

I cannot offer any adequate explanation of the severity of the symptoms, except that possibly the torsion of the hydatid served to set up something akin to a "reflex" hyperemesis gravidarum. But why the patient should have been so alarmingly collapsed and pale I do not know, for the "hyperemesis," if such one may call it, was not of itself sufficient explanation.—I am, etc.,

Edinburgh, Jan. 31st. R. W. JOHNSTONE.

SIR,—Mr. Abernethy will find the record of a case of torsion and strangulation of a hydatid of Morgagni reported by Waters in the *Journal of the American Medical Association*, 1919, vol. 72, p. 1072.

A further case is recorded by Russell Andrews in the *Proceedings* of the Royal Society of Medicine (Obstetrical and Gynaecological Section), 1912, vol. 22, p. 220; in this case the patient was pregnant.

In 1923 I presented to the North of England Obstetrical and Gynaecological Society a case of strangulation of a small fimbrial cyst measuring a quarter of an inch across. The case is briefly reported in the proceedings of the Society in the *Journal of Obstetrics and Gynaecology of the British Empire*, 1923, vol. 30, p. 313.

My case is not absolutely comparable to the above as there was no visible pedicle and the strangulation lay at the upper margin of the tube. It is of interest, however, that such a small area of strangulation should have produced subacute symptoms of vomiting and fainting. The removal of the small area was followed by an immediately good result. The condition of strangulation was confirmed by microscopical examination.—I am, etc.,

Liverpool, Jan. 31st. H. LEITH MURRAY.

SIR,—Since the publication of my account of a case of strangulated hydatid of Morgagni in the female, in your issue of January 26th (p. 144), I have learned that this lesion has been described previously by Dr. Russell Andrews, who published an account of it in the *Clinical Journal* (September 10th, 1913, p. 362).—I am, etc.,

Oxford, Feb. 4th. D. A. ABERNETHY.

PROGNOSIS IN ECLAMPSIA AND ALBUMINURIA OF PREGNANCY.

SIR,—The important paper by Dr. James Young, published on January 19th (p. 91), with conclusions which conflict with ideas which were largely accepted by workers in this field until now, leads me to raise some points which may help in these problems.

1. What positive evidence as yet is there available to us that "kidneys were previously healthy"—to quote Professor Young's exact words in the second argument brought forward in favour of the thesis that the kidney defect is not, at any rate, one of the primary factors? Unfortunately it is most unusual for renal adequacy or inadequacy to be assayed, at any rate on modern lines, before pregnancy, and especially the first pregnancy, occurs. Gibberd[1] in his report was guarded, and classed his cases as "presumably" healthy beforehand.

2. The evidence cited as having been collected for Professor Young by Dr. Jessie Sym is based on the cardiovascular changes, renal concentration tests, and blood urea indices. Valuable as these are, one would urge caution in considering them *conclusive* evidence as to renal efficiency or not. Gibberd goes so far as to say that it is in pregnancy itself that we have the most delicate test of renal efficiency, and suggests that biochemical tests are of comparatively small value. I am not willing to go so far as that yet, but the point should not be overlooked in these obscure and difficult problems; turning to the special report by Cruickshank and others,[2] we find they note the extreme difficulty in deciding whether an albuminuria of pregnancy is a "simple toxic" or a "nephritic" one, and their biochemical examinations were most extensive.

3. There is in my experience a difference between the course of the subsequent pregnancies which distinguishes the frank renal cases from the purely toxic ones. In the latter the tendency is for there to be a more prolonged gestation—six to eight months commonly before obvious trouble—while in the former the pregnancy is interrupted

[1] *Proc. Roy. Soc. Med.*, March, 1928, vol. xxi, p. 831.
[2] *Toxaemias of Pregnancy.* Medical Research Council, Special Report Series, No. 117.

at an increasingly early period as the patient goes downhill, and the kidney fails.

4. Lastly, and lest my criticisms should be all destructive and not helpful, I would point out that the possibility of a (normal?) full-time pregnancy with living child, in cases of *known* extensive renal disease, has been often observed, showing, perhaps, that the renal disease is not *necessarily* the whole factor in these cases.

I have ventured to encroach on your space so far, as I have just finished collating and analysing a series of over a hundred cases, not yet published, some of which have been watched during a long period, some over thirty years, and part of the results do not appear to support Dr. Young's deductions. I am sure all workers in this difficult field will welcome his paper, and that it will be helpful in many ways, one of which will be the criticisms that it may evoke.—I am, etc.,

Norwich, Feb. 5th. ARTHUR CROOK.

ASTHMA.

SIR,—On first perusing the letter of the Asthma Research Council their statements appeared to be merely platitudes; but on reading the assertions made by some of your correspondents, I am inclined to agree that these apparent axioms are in still further need of emphasis.

I have every reason to know that the claims about curing asthma made by certain chemical pathologists are disappointing. There is a manifest fallacy in the theory that foreign proteins which give a reaction when injected hypodermically, or scratched into the skin, will therefore cause disturbances when swallowed, even if they do so sometimes. I venture to suggest that if some of those who are in the habit of eating beef or mutton were to inject themselves hypodermically with 10 c.cm. of beef or mutton serum, they would have some reason to remember the occasion.

Though I practise the nasal method of treatment myself, I am the first to realize that exaggerated claims have been made for it, based upon statistics containing large numbers of untraced cases. Mr. Herbert Tilley has pointed out in his textbook how often these relapse months or years after an apparent cure.

My own experience is that only those patients who have no gross lesions, and who give a positive tear-reflex test (*Journal*, December 1st, 1928, p. 985) are likely to do really well by nasal treatment. Such patients should, in my opinion, be treated in a very conservative way, efforts being devoted to rendering the hypersensitive mucous membrane insensitive by means of the galvano-cautery or other caustics. This is my experience after reviewing a series of cases from four to six years after treatment. The only operation which has not disappointed me has been removal of tonsils.

But whatever the experience of individuals may be, there can be little doubt that some co-ordination of knowledge and sifting of evidence is essential.—I am, etc.,

London, W.1, Feb. 9th. H. MORTIMER WHARRY.

THE DICK TEST IN SCARLET FEVER.

SIR,—In reply to Dr. Balmain, who asked, on January 26th (p. 175), what was the size of the Dick reaction which I considered positive, I never regarded anything less than 1.5 centimetres as positive. The nurse to whom he referred was found to be Dick-negative at two examinations, one being two months before and the other three weeks before her attack of scarlet fever.

Until I had read the article by Dr. Burton and Dr. Balmain in the *Lancet* of May 26th, 1928, I was surprised that Dr. Balmain disagreed with me when I asserted in my article that it was impossible, in the present state of our knowledge, to say that a positive Dick test in a patient who had had scarlet fever indicated a failure to develop immunity to this infection. In that article Drs. Balmain and Burton stated as follows: "We would suggest, however, that the Dick-positive reactors in convalescent scarlet fever cases are persons who have failed to develop immunity." I would point out to Dr. Balmain that among the high proportion of Dick-positive reactors in convalescent scarlet fever patients in my series not one developed scarlet fever, and they were all treated in an acute ward. The late Dr. Zingher, in the admirable article referred to by Dr. Balmain and myself, said "Positive Dick reactors are susceptible to scarlet fever as far as not having antitoxin is concerned," and again, "Positive Dick reactors, however, need not necessarily develop scarlet fever when exposed to the disease." I was very pleased to notice that Drs. Balmain and Burton referred to their eighteen cases as true relapses, because it has always seemed to me to be of the greatest importance in investigating any case of a relapse or a second attack of scarlet fever to make certain that the first attack had been genuine.—I am, etc.,

Doune, Feb. 4th. WILLIAM BROWN, M.D.

"DEBILITY" IN CHILDREN AND CYCLICAL VOMITING.

SIR,—Dr. Osman writes an important and interesting article in your issue of January 26th (p. 150) on debility and cyclical vomiting. Dealing with the latter subject only, I am unable to accept unreservedly his sugar deficiency theory, as it does not seem to cover all the facts.

It is not uncommon to see a child who has exhibited all the symptoms of cyclical vomiting quite cured after adequate treatment with santonin for round-worm.

Dr. Osman draws attention to the similarity between cyclical vomiting and recurring appendicitis. Differing from him, I consider that frequently the latter is the starting point of all the symptoms. Time and time again I have seen the attacks finally stopped by removal of an offending appendix; and it does not convince me when I am told that extra sugar in the diet might have produced an equally favourable result.

Having seen, as a practitioner, many cases of cyclical vomiting, the impression I have formed is that it is not an absolute clinical entity, but a symptom group resulting sometimes from one cause and sometimes from another. If Dr. Osman's theory turns out to be even partly correct, we must thank him for providing us with a potent weapon against the malady.

In the excellent description of signs and symptoms given in the article two rather constant signs are missing—namely, a dusky malar flush and the so-called acetone odour in the breath.—I am, etc.,

Lerwick, Feb. 4th. JAMES CAMPBELL, M.B., Ch.B.

SIR,—It would be almost impossible to reply in detail to every one of the many interesting points raised by Mr. R. Chalmers and Dr. J. Thomson Shirlaw on February 9th (p. 269) in their friendly criticisms of my article on the above subject. To do so would occupy a great deal of space, and most of the points have been covered in a further paper on the subject which will appear in due course.

I would like to make it clear, however, that the statements in my article were not based simply on the finding of acetone bodies in the urine of these children, but on a very comprehensive clinical and biochemical study of a large group of cases, carried out over a considerable period. The observations made included estimations of the blood bicarbonate, chloride, inorganic phosphates, calcium, sugar, and total acetone bodies, together with careful chemical investigations of the urines of these cases at the same time. In a number of instances also bilirubin estimations on the blood, fractional test meals, alimentary *x*-ray examinations, and glucose and levulose tolerance tests were also employed. Further, corresponding observations have been made on a series of "debilitated" adults; the results of these observations will be published in the paper referred to.

I should like to take this opportunity of discussing in a little more detail the position with regard to "acidosis" in relation to "debility." For this purpose the term "acidosis" may be defined as a reduction of the plasma bicarbonate. Such reduction may, or may not, be due to, or associated with, an excess of ketone bodies in the blood; that is to say, a condition of acidosis may be present, and frequently is, without acetonaemia, etc. As a matter of

fact, it has long been known that ketosis may occur in the presence of an alkalosis. Most of the "debilitated" children referred to in my article were suffering from a mild acidosis. Only a small proportion of them had at the same time ketosis, so far as could be ascertained by the tests used. Of the "debilitated" adults referred to in this letter, hardly any had a ketosis associated with the acidosis. Further, in those children in whom both acidosis and ketosis were present the latter was insufficient quantitatively to account entirely for the former.

I cannot therefore agree with the findings of Gamble, Tisdall, and Ross concerning this point. No doubt the ketosis, when present, is due to incomplete combustion of fats, as Dr. Shirlaw remarks, but the acidosis without ketosis is still unexplained. Why it is that the giving of sugar should benefit these non-ketotic cases, as it undoubtedly does, is also at present a mystery. Ketosis is, of course, more commonly met with in children than in adults, because, in the former, owing to their comparatively poorly developed cerebral inhibition, with consequent lack of emotional control, greater and more frequent calls are made on the glycogen stores of the liver. It is for this reason, too, I think, that the symptoms described in my article under the heading of "debility" are more marked in nervous children, but they are certainly not confined to them. Such a conception would explain the comparative failure of sugar in the treatment of the "debility" of adults. The one biochemical finding which is present in all these children is a lowered plasma bicarbonate, though the diminution may only be slight. I would therefore suggest that, until our knowledge of the subject is more complete, the term "the acid child" would be correct and convenient, and would best describe the patient. I agree with Mr. Chalmers that one occasionally comes across a child, and even a whole family, who exhibits an apparently inherited dislike for sugar, but this is exceptional.

With regard to the importance of atmospheric conditions in determining the onset of attacks of cyclical vomiting, I also agree with Mr. Chalmers. During the past few years I have certainly seen several cases of asthma in children in whom the attacks were entirely prevented by giving sugar, and others in whom the frequency and severity of attacks were diminished by the same means. On the evidence available one can only conclude that this was due to the associated improvement in the general health of the child.

With regard to Professor Vining's investigation of the pre-rheumatic health defect in children, I believe that his work constitutes the most important step yet made in the study of the rheumatic child, though I cannot quite agree with his views on the nature of the particular dietetic error concerned.

Finally, I agree with Mr. Chalmers's implication that simply giving extra sugar to children is not the beginning and the end of the whole problem. That such a procedure is very frequently successful in restoring to health many children afflicted with various minor disorders there can be no doubt. It is equally certain that the best results will only be obtained by the prescription of a correctly balanced diet, and this can only be achieved as a result of carefully conducted experiments on children living under varying conditions.—I am, etc.,

Queen Mary's Hospital, E., Feb. 11th. ARTHUR A. OSMAN.

TREATMENT OF EMPYEMA.

SIR,—I hope the able remarks of Dr. F. G. Thomson about empyema in the *Journal* of January 19th (p. 89) have received the attention they deserved from your readers. He shows that under the usual method of treatment the mortality in this disease is heavy, and the result too often crippling in those who survive.

My experience, covering a period of forty-three years in a fairly busy general practice at Rhyl, prompts me to write to you. In that time I have treated many cases of empyema, both in adults and children, the youngest of the latter being 6 months old, and of the total number of cases I cannot recall a death or even permanent impairment, except, perhaps, in one or two tuberculous cases.

The following were the methods I generally adopted. On ascertaining the presence of pus, the affected side was completely aspirated, and later, as pus re-accumulated, an incision was made, with or without rib resection, and a tube introduced of efficient size for drainage. The cavity was irrigated daily with a solution of iodine. Turpentine was employed in nearly all such cases, as it was often markedly beneficial. Administered as follows it is not so unpalatable as generally imagined:

R	Ol. terebinth. pur.	3ij-3iij
	Pulv. tragacanth. co.	3iss
	Sp. amm. arom.	3iij
	Aq. chlorof.	ad 3viij

Misce. Cap. 3j 4tis horis.

Aspiration empties the chest without the introduction of air, thus giving the best chance of expanding the compressed lung, of lessening the abscess cavity, and of speedily relieving embarrassed breathing. The patient has a welcome respite, and when the time comes for the next procedure of opening the chest and introduction of the tube, he is exposed to less danger. The presence of air in the cavity does not matter so much then. If there is evidence that the lung has not expanded enough it is better to aspirate again than to open the chest, for a closed pleural cavity offers the only chance of recovery to a compressed lung.—I am, etc.,

Prestatyn, Jan. 28th. W. THOMAS.

ERYTHEMA NODOSUM.

SIR,—Dr. G. F. Walker, in his interesting letter (February 9th, p. 266) outlining a summary of the status of this disease, says, "Priority for the notion that erythema nodosum may be the rash of an acute specific infectious disease belongs to Dr. Harrison, who was president of the Dermatological Society in 1900." It must be remembered, however, that just thirty years prior to Dr. Harrison's presidential address, Trousseau, in his clinical lecture on this disease (vol. ii, New Sydenham Society's *Transactions*, London), said, "Erythema nodosum is a specific and separate disease, which manifests itself locally by characters so precise as not to admit of being mistaken." I agree with Dr. Walker that clinically it is far more important to settle the relationship between erythema nodosum and tuberculosis than to argue the vexed question as to its specific nature.—I am, etc.,

Clifton, Bristol, Feb. 9th. J. ODERY SYMES.

THE ADRENAL GLAND.

SIR,—The recently published work of Dr. Cramer on heat regulation and the thyroid and adrenal apparatus contains a description of the resting and active medulla of the suprarenal gland. He finds that by fixing the gland in the vapour of osmic acid the granules of adrenaline are rendered visible. Adrenaline readily reduces osmic acid to the black lower oxides, appearing as fine black granules. Any fluid fixative will dissolve the granules of adrenaline before it can fix them. He says:

"In the active gland the adrenaline granules in the cells adjacent to blood vessels can often be seen being poured directly into the blood vessel. The capillary blood spaces, and especially the big central vein, are filled with these black granules in the midst of which the red blood corpuscles are lying. Sometimes the charge is so violent that the endothelial lining separating the lumen of the small veins from the cells bordering them is torn off and small parts of the cytoplasm are swept into the blood stream, where they can be seen. Occasionally the vacuoles forming in a group of cells which constitute an alveolus, coalesce in the centre so as to form a lumen into which the adrenaline granules are secreted."

It is a curious fact that in the *British Medical Journal* of July 4th, 1896 (p. 10), I published an account of the behaviour of the active body of the medulla of the suprarenal gland, which corresponds exactly to the above. The article is illustrated by three photographs, which, in my *Selected Researches in Pathology* (1901), came out very clearly on special paper. The words are:

"After a long and varied series of investigations made on man, horses, oxen, sheep, dogs, rabbits, etc., I arrived at certain definite conclusions respecting the mode of secretion by the epithelial gland cells, the transmission of this secretion to the blood, and certain other interchanges which take place between the secreting cells and the blood. . . . When about to become active the cells of the columns become highly elongated, and their nuclei recede from the blood vessels to the very furthest point, until in this way the nuclei of any two opposite rows meet, forming thus a double row of nuclei. On either side the protoplasm of the columnar cells will be clearly seen stretching to the blood vessels (Fig. 1). . . . The protoplasm of the cells thereupon assumes a finely, but markedly granular character, and the granules become so disposed as to form frequently longitudinal streaks perpendicular to the wall of the blood channel; simultaneously the ends of the cells become flattened against the delicate membrana propria, through which the secretion *streams directly into the blood.* (Fig. 1: Note that in this particular instance the contents of the blood vessel are in the form of a homogeneous coagulum.) . . . It sometimes happens that the secretion breaks down the membrana propria altogether, and the blood and cells come into direct contact. (Fig. 2: The blood is normal in this case.) . . . In like manner we find that sometimes a local secretion occurs among groups of cells, undischarged into the blood, and then we have a mass of secretion lying amongst, and to some extent displacing, the cells (Fig. 3)." [This mass is distinguished from the coagulated contents of vessels by its staining reactions, etc.]

Dr. Cramer's observations were made on mice and rats, but I used large animals, such as the horse and sheep. The resting medulla with its large nuclei described by him, and the small nuclei of the active cells, are seen also in my figures. In my book it is stated that "the foregoing observations were made antecedent to the experimental work which in the hands of Oliver and Schafer and Abclous and Langlois has been fraught with interest and importance." The conclusion is come to that this substance is a powerful reducing agent, and that the toxic body or bodies of Addison's disease are normally destroyed in the gland itself.—I am, etc.,

London, W.1, Feb. 5th. A. GUNN AULD.

CEREBRAL ANGIOSPASM.

SIR,—The case described below may be compared with that of Dr. A. S. Gubb (February 9th, p. 247). More than forty years ago I was asked by a medical friend to see his wife, aged about 75, who had been struck with right hemiplegia. The following features of the case still remain in my memory. The patient rose in the morning feeling somewhat ill, but dressed herself until it came to doing her hair, when she found herself unable to use her right hand. She returned to bed, and within a few minutes the paralysis extended to the whole right side. She was drowsy but able to speak. Her breath was foul, smelling of bile. A little later she vomited a quantity of matter containing bile, and from that time got better, recovering the use of the right side before the end of the day. She lived for about five years afterwards, had no return of paralysis, and died of carcinoma of the liver.—I am, etc.,

Cambridge, Feb. 11th. F. J. ALLEN.

ACTINOTHERAPY AND DEAFNESS.

SIR,—The probable explanation of the case quoted by Dr. T. C. Hunter in his letter (January 19th, p. 133) is that the nurse in question was suffering from functional, not organic, deafness. This was possibly associated with lowered vitality, chiefly indicated in her case by defect in this special sense. Her removal to work under conditions which exposed her to the action of ultra-violet rays improved her general condition, leading to an increase of activity in the sense of hearing. This by no means implies the recognition of ultra-violet rays as a treatment for established organic deafness. Such cases as that reported by Dr. Hunter are occasionally met with, and require careful diagnosis; they have probably some relationship to the better recognized "hysterical" deafness. Chronic progressive deafness should not, however, in my opinion, be considered as a "degenerative disease" in the majority of cases.—I am, etc.,

Bath, Feb. 4th. H. NORMAN BARNETT.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Local Government (Scotland) Bill.

THE committee stage of the Local Government (Scotland) Bill began in the House of Commons on February 4th. Considerable discussion took place on Clause 1, which provides for the transfer of the functions of parish councils and district boards of control to county councils and town councils of large burghs. Sir A. SINCLAIR moved the deletion of the provision relating to the parish councils. Sir J. GILMOUR replied that the new central authorities to be set up would be the elected representatives of the people, charged with certain duties, but it was clearly indicated that these bodies should submit definite schemes showing in detail how they would carry out their duties. In the case of the Poor Law it was obvious that there must be within those schemes such measure of arrangement as would ensure that immediate relief was given to the necessitous people within the district. The real essence of the bill was that there should be a large amount of elasticity in order that the peculiar problems of particular areas might be dealt with. The Government were abolishing out-of-date machinery and obtaining in its place the best machinery possible. In the course of further discussion, Dr. ELLIOT explained that it would be possible to treat the sick poor under Acts other than the Poor Law. The amendment was defeated by 193 votes to 94.

Sir J. GILMOUR, dealing with the duties to be transferred from parish councils to district councils, said that, with certain exceptions, the duties were the same as the parish councils were performing to-day. The chief exception was that of the Poor Law, but in the matter of dealing with outdoor relief the central body might under their scheme delegate some part of the work to the district councils. The amendments, moved by Sir J. Gilmour, to carry out a previous undertaking, were carried, and the clause was added to the bill.

On Clause 2, which deals with the transfer of certain other functions to the county councils, Dr. SHIELS moved the omission of paragraph (*b*), which transfers the functions of town councils of small burghs within the county as local authorities for the purposes of the statutory provisions set out in Part I of the first schedule. Dr. Shiels said that the proposal did not seem to have any justification, and had no relation to the de-rating proposals. The county councils were upstarts, whereas the small burghs had, for hundreds of years, been places of efficient government. Sir J. GILMOUR replied that different commissions and inquiries had repeatedly urged the setting up of larger areas. It was not the case that the county councils were inefficient. The small burghs, under the Government's scheme, play a very large and important part in the policy and administration with which the new larger authorities would be entrusted. The amendment was rejected, and the clause added to the bill.

On February 5th the whole of the time available for debate was given up to a discussion of an amendment by Sir R. HAMILTON to Clause 3 to omit the subsection providing for the transfer of the functions of the education authorities. Dr. ELLIOT, replying to the debate, said that the education authority of Scotland had been deemed on more than one occasion to be ripe for reform. The method which the Government were bringing forward was not suggested by anyone but by the great civil servants who had to advise the Government. It was deeply worth while to make this great change for the sake of the benefits which they expected to derive from it. At this moment a recasting of local government was taking place in Scotland, and they expected an extension and enlargement of the powers of the central bodies—the county councils and the town councils—to take place which would raise them to a position of prestige and dignity which they had never enjoyed before. By a new grant their hands were being freed to a very large extent from many of the niggling controls which it was necessary to place on them when the system of the percentage grant was introduced. Furthermore, the Government were, in the health clauses, making it possible to alter the health system of Scotland along the lines which the health reformers had been demanding for many years past. When all these great changes were taking place it would be folly, and criminal, to leave out of account the 800,000 school children who were the flower of Scotland, and who were the people on whom they relied for the whole national life of Scotland in the years to come. The time had gone past when it was possible to treat the mind of the child apart from the body of the child. To do that there must be the close and intimate connexion of the great new authority which was responsible, not *ad hoc* for health but *ad omnia*, as health was one of the major functions. If health was not too important a subject to put into the hands of this great new authority, then education was not too important either. If they could entrust this new authority with the terrible and powerful responsibility of the tender years of child life of Scotland from 1 to 5, and with the life of the adults of Scotland from school age to death, and the bodies of Scotsmen and Scotswomen, it would be going back on all that they were bringing forward, and

on the whole theory of health as one of the most important of modern functions, to say that the body was a secondary thing, and that an *ad omnia* authority could take charge of the bodies of the people of Scotland, but that there was something so sacred in this question of book-learning that it had got to be removed entirely from the ambit of that authority and to be put under different control. The Government's theory and conviction was that the body was as sacred as the mind, and if they could make a strong, fit, and burly generation of young Scots then they would have done something to which the making of the mind of the Scotsman and Scotswoman was not a secondary thing. That was their contention, and the contention of the great medical school. Hon. members could call it, if they would, a materialistic ideal, but they did not regard it as such. They said that the formation of the fit citizen could not be carried out unless the supervision of the citizen all the way through was entrusted continuously to one responsible authority.

The amendment was defeated and the clause agreed to.

Clauses 4, 5, and 6 were agreed to under the guillotine, also Clause 7, which provides for the transfer of officers and superannuation funds.

On February 7th Major ELLIOT moved an amendment providing that administrative schemes might be made for the treatment of persons suffering from disease, infectious or otherwise, lunatics and persons mentally deficient, expectant or nursing mothers, young children or blind persons, otherwise than by the Poor Law Acts. He said this had to be taken in conjunction with a new clause, to be moved later, dealing with the wide extension of hospital facilities.

Several Labour members complained that the amendment would leave certain sick persons to be treated under the stigma of the Poor Law.

Sir JOHN GILMOUR said the amendment made a definite change and advance. That it should be mandatory was not practicable. It proposed that the authorities should produce schemes by which sick persons who were not under the Poor Law but in poor circumstances could be treated. The authorities could then recover from them such amounts as were thought desirable.

The amendment was approved by 197 to 107.

Radium.

Mr. CHAMBERLAIN, speaking on February 7th, said he had £10 funds at his disposal for the purchase of radium, and he did not know whether work was continuing at the mine in Cornwall where radium deposits had been found. The Government would consider the whole question of the purchase of radium when a report had been received from the subcommittee of the Committee of Civil Research, which was looking into the subject. He expected this report within a year.

Mr. A. M. SAMUEL, on February 11th, informed Mr. Benn that "radium compounds" were included in the list of chemicals liable to a duty of 33⅓ per cent. ad valorem issued by the Board of Trade under Part I of the Safeguarding of Industries Act, 1921. These compounds were, however, exempted from duty until June 30th next by a Treasury Order made under the Finance Act of 1926. Radium was not dealt with commercially except in the form of a compound.

On February 11th Sir KINGSLEY WOOD, replying to Mr. R. Morrison, said that the Minister of Health had approved arrangements under which the Edmonton Board of Guardians would obtain a supply of radium for the treatment of forms of cancer at the infirmary of the guardians which was known as the North Middlesex Hospital. One of the terms of the arrangement was that if the radium was not in use for persons chargeable to the guardians it should be used for similar cases from other unions in the adjacent parts of Middlesex. There had been and would be no avoidable delay on the part of the Minister of Health in bringing the arrangements into operation.

Protection of Animals (Amendment) Bill.

Lord BANBURY moved the third reading of the Protection of Animals (Amendment) Bill in the House of Lords on February 7th. The purpose of this bill was to prevent the issue of dog licences to persons convicted of cruelty to dogs. Lord SALISBURY thought the proposal was cumbrous and very ineffective. He could not agree to an amendment inserted at a previous stage to provide that any person applying for a dog licence must sign a declaration that the application was not made directly or indirectly for anyone whose licence had been revoked or suspended. After further debate the bill was rejected by 24 to 18.

Deaths from Cancer in Scotland.—Sir J. GILMOUR, on February 12th, told Mr. R. Morrison that last year 11 males and 16 females under 15 years of age, and 3,005 males and 3,870 females over 15, died in Scotland from cancer. This made a total of 6,902 deaths of persons of all ages.

Assessment of Voluntary Hospitals.—Mr. CHAMBERLAIN told Sir Arthur Holbrook, on January 31st, that he had received some representations about the increases recently made in the assessments of voluntary hospitals. The exemption of hospitals from rating could not be effected without legislation, and he thought that it could not be considered apart from the similar claims made on behalf of other charitable and public institutions.

Pensions Appeals.—Mr. CHAMBERLAIN told Mr. Tasker, on January 30th, that during the year ended September 30th, 1928, 174 appeals were received by the Ministry of Health from persons whose claims to pensions had been refused by local pensions committees on the ground that the claimants did not appear to fulfil the statutory condition of blindness. Of these claims, 111 were decided in favour of the claimants.

Grants for Maternity and Child Welfare Schemes.—On February 7th Mr. CHAMBERLAIN said that even if schemes for buildings connected with maternity and child welfare work had been approved by the Ministry for a 50 per cent. grant these grants would be wholly discontinued after March 31st, 1930, and absorbed in the new grants to be given under the Local Government Bill.

Discharge of Criminal Lunatics.—Asked how he was guided in deciding on the release or detention of a criminal lunatic, Sir W. JOYNSON-HICKS said that so far as medical considerations were concerned he was guided mainly by the skilled medical authorities at Broadmoor Criminal Lunatic Asylum, or, if the patient were in a local mental hospital, by the views of the superintendent and of his own medical advisers. All criminal lunatics were under medical observation, and reports on each were made to the Home Secretary by the superintendents of the asylums. Discharge did not depend entirely upon any single definite factor, such as entire recovery or complete cure.

Nervous Disorders of Telephonists.—On February 12th Sir W. MITCHELL-THOMSON told Sir R. Thomas that, in 1926, out of 79,712 days of sick leave taken by London telephonists, 4,913 days were attributed to neurasthenia, nervous debility, nervous exhaustion, nervous shock, and neurosis; 385 days to neuritis; and 1,592 days to neuralgia. The total number of telephonists employed was 7,051, but there was no record of the number absent on account of these disorders.

Protection against Attack by Air.—Mr. BALDWIN informed Mr. R. Morrison, on February 12th, that the problem of the protection of the civil population against air attack was being closely studied in all its aspects, including protection from chemical gas. The need for the preliminary training of personnel and for the preparation of full and precise instructions to all concerned was not overlooked.

Sanitary Conditions in Hop-growing Areas.—Mr. CHAMBERLAIN, replying to Sir R. Thomas, on February 12th, said that he was aware that in some areas in Kent the sanitary conditions were during the last hopping season unsatisfactory. He was not, however, aware of any evidence suggesting that an outbreak of infectious disease was attributable to those conditions, and, in fact, the number of cases of notifiable infectious disease reported from the districts in which imported pickers were employed was not abnormal.

Hygienic Conditions of Crew Spaces on British Ships.—Dr. VERNON DAVIES asked the President of the Board of Trade, on February 6th, whether the joint committee recently set up by him and by the Minister of Health would inquire into the hygiene of crew spaces on board ship. Mr. HERBERT WILLIAMS, answering for the President, said a series of special reports on the subject had been placed before the Joint Advisory Committee set up by the Ministry of Health and the Board of Trade. Dr. DAVIES asked if representations had been received from the Society of Medical Officers of Health, the Royal Sanitary Institute, and the Association of Port Sanitary Authorities, stating that the conditions under which British seamen were housed on British ships were, from a hygienic standpoint, unsatisfactory and inferior to those on ships of other nationalities. Mr. HERBERT WILLIAMS said representations had been received from one body, and would be considered in any amendment of the crew space regulations which were now under review. Conditions on some British ships were not satisfactory, but it was misleading to suggest that crew spaces on British ships generally were unsatisfactory from the hygienic standpoint and inferior to those on foreign ships. Since 1918 any changes made in the Board of Trade instructions had been in the direction of a higher standard.

Notes in Brief.

The Secretary for Dominion Affairs has no information as to the existence of promising deposits of uranium ores in Australia.

The published information does not permit the Ministry of Health to compare the rates of mortality from puerperal sepsis in Germany, Sweden, and France with those in England and Wales.

Sir J. Gilmour is prepared to undertake that the welfare of blind persons will not be prejudiced by the provisions of the Scottish Local Government Bill.

Mr. Amery states that there are three European hospitals in Kenya with 46 beds, and twenty-nine non-European hospitals with 153 beds. In 1927 the two classes treated 27,006 in-patients and 176,281 out-patients.

On February 7th Commander Kenworthy presented a petition, signed by 9,829 persons, praying the House of Commons to prohibit vivisection.

Mr. Chamberlain announced, on February 7th, that he proposed to lay on the table at an early date the report of a Ministry of Health medical officer who recently visited the distressed areas in South Wales.

[An account of the debate on the report stage of the Local Government Bill will be published next week.]

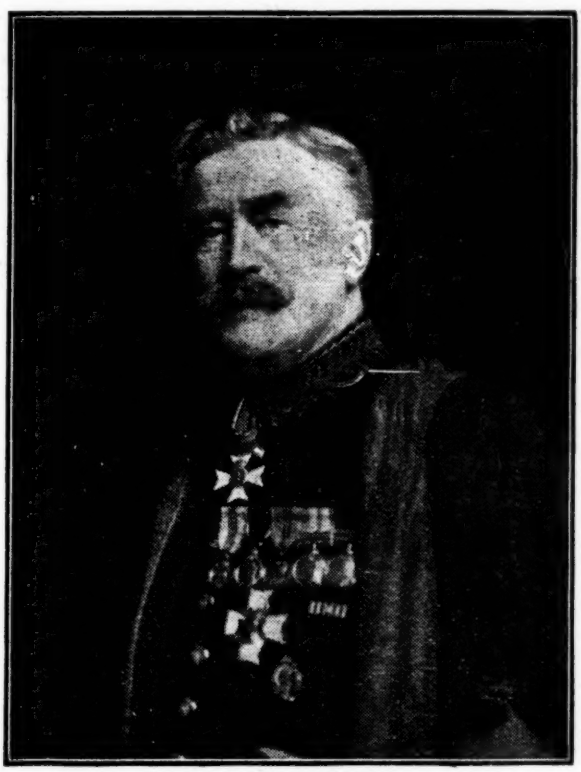
Obituary.

SIR ALEXANDER OGSTON, K.C.V.O., M.D., C.M., LL.D.,

Extra Surgeon to the King in Scotland; Emeritus Professor of Surgery, University of Aberdeen; Consulting Surgeon to the Aberdeen Royal Infirmary.

We had to record last week, with much regret, the death, at the age of 84, of Sir Alexander Ogston, Past President of the British Medical Association, which took place on February 1st at his home in Aberdeen.

Alexander Ogston, eldest son of Francis Ogston, professor of medical jurisprudence in the University of Aberdeen, was born in April, 1844. He received his medical training first at Aberdeen, then later abroad, at Prague, Vienna, Berlin, and Paris, graduating M.B., C.M.Aberd. (with honours) in 1865, and proceeding M.D. a year later. After his study tour of the leading medical schools of Europe Alexander Ogston returned to Aberdeen, where he soon built up a large practice, at first general, but later, with his growing reputation as a surgeon and skilful operator, purely consulting. In 1865 he was appointed assistant to his father, a position he held till 1873. From 1868 till 1872 he was joint medical officer of health for Aberdeen, and in 1872 was put in charge of the small-pox isolation hospital that had been specially set up in that city. His connexion with the Royal Infirmary began in 1868, when he was appointed ophthalmic surgeon; two years later he became junior surgeon, being appointed acting surgeon in 1874 and senior surgeon in 1880. This post he held till his resignation in 1898, when he became consulting surgeon. While holding his various posts at the Royal Infirmary he was actively associated with the University of Aberdeen. In 1869 he was appointed university lecturer in practical ophthalmoscopy, and in 1873 he became examiner in medicine, a position he held till 1876. On the retirement of Professor William Pirrie in 1882 he became regius professor of surgery, which office he retained with distinction for twenty-seven years. As a teacher his work was inspired by high ideals, and under his supervision the department of surgery grew in strength and efficiency.



SIR ALEXANDER OGSTON.

Alexander Ogston, himself educated before the days of antisepsis, at a time when hospital wards teemed with erysipelas and septicaemia, was an early convert to Listerian methods, his own research into the cause of acute suppuration resulting in the discovery of the *Staphylococcus pyogenes aureus*. Early in his career he devoted himself to bone surgery, the "Ogston operation" for genu valgum being extensively practised until it was displaced by Macewen's method. The very name "staphylococcus" was originated by him in 1883, when he was struck by the resemblance between clumps of cocci and bunches of grapes.

But it was in military surgery that his deepest interest seemed to lie; "he was," in the words of Sir James Porter, "the first pioneer in dealing with the medical conditions prevailing in the Army and Navy in modern times." Though it was the Franco-Prussian war of 1870–71 which specially directed his attention to this branch of surgery, it was not until the Egyptian war of 1884–85 that he had his great opportunity of mastering its practice. He set out for Egypt in 1885, and, after some service on the hospital ship *Ganges*, joined the First Bearer Company, and soon found himself in the thick of actual fighting. At Hasheen and Suakin in particular he was able to do excellent work among the wounded; for his services and personal bravery he was awarded the Egyptian war medal and the Khedive's bronze star, and at home received the thanks of the British National Society for Aid to the Sick and Wounded in War. His next experience of active service was in South Africa in 1899–1900, and on his return he was appointed a member of a committee of medical experts set up by the Government to consider a scheme for the future organization of the Army Medical Corps, and some of the suggestions he then made have since been carried out. Though at the outbreak of the great European war (1914–18) he was 70 years of age, Sir Alexander Ogston acted as operating surgeon to the Southall Auxiliary Military Hospital during the winter of 1914–15, proceeding subsequently to Belgrade in charge of a hospital detachment from the British naval force on the Danube. In 1916 he accepted an invitation to join the First British Ambulance Unit in Italy as operating surgeon. He remained attached to that unit for about fifteen months, and, acting with the Second Italian Army, had his first opportunity of seeing the realities of modern warfare. The honour of Cavalier of the Order of the Crown of Italy was conferred upon him in July, 1920. In his book entitled *Reminiscences of Three Campaigns*, published in 1919, he paid a glowing tribute to the bravery of our Italian allies.

In the course of his long and busy career Sir Alexander Ogston received many honours. He was Surgeon in Ordinary in Scotland successively to Queen Victoria, King Edward VII, and King George V. In 1901 the University of Glasgow, on the occasion of its 450th anniversary celebrations, conferred on him the honorary degree of LL.D., and in 1910 his own university paid him the same honour. In 1902 he was appointed to the Royal Commission on Physical Training in Scottish Schools; he was a member of the Deutsche Gesellschaft für Chirurgie, and a corresponding member of the Société Royale des Sciences Médicales et Naturelles of Brussels. In 1912 his name appeared in the Birthday Honours List as Knight Commander of the Royal Victorian Order.

As far back as 1873 he was secretary of the Section of Surgery at the Annual Meeting of the British Medical Association in London, being its vice-president when it met in Dublin in 1887, and president at Carlisle in 1896; in 1889 he delivered the Address in Surgery when the Association met at Leeds. By the choice of his local colleagues he held office as President of the Association when the Annual Meeting was held at Aberdeen in July, 1914, and since 1922 he had been a Vice-President of the Association. His active work for the Association included membership of the Parliamentary Bills Committee in 1889–1901; presidency of the Aberdeen Branch in 1900, and again from 1915 to 1919; and membership of the Aberdeen Branch Council in 1920.

Between the years 1868 and 1902 Alexander Ogston contributed a large series of original papers to British and Continental medical journals. Among the most noteworthy of these contributions may be mentioned: The Operative Treatment of Genu Valgum (*Edinburgh Medical Journal*, 1876-77); The Growth and Maintenance of the Articular

Ends of Adult Bones (*Journal of Anatomy and Physiology*, 1878); Report upon Micro-organisms in Surgical Diseases (*British Medical Journal*, 1881); Micrococcus Poisoning (*Journal of Anatomy and Physiology*, 1882); Continental Criticism of English Rifle Bullets (*British Medical Journal*, 1899); and A New Principle of Curing Club-foot (*British Medical Journal*, 1902).

Sir Alexander Ogston was twice married, his first wife being Mary Jane, daughter of Mr. James Hargreave, and his second wife Isabella Margaret, daughter of the late Provost James Matthews of Springhill. By his first wife he had two sons and two daughters, and by his second wife four sons and four daughters. He is survived by two sons and five daughters.

We are indebted to Sir JOHN MARNOCH, Regius Professor of Surgery, University of Aberdeen, for the following tribute:

It is almost twenty years since Sir Alexander Ogston resigned the chair of surgery in Aberdeen, and for a number of years prior to that he had ceased to be surgeon to the Infirmary. To the present generation of students, therefore, he is known only by name, but upon those of us who had the privilege of being his pupils when he was at the zenith of his career as a surgeon and teacher he made a profound impression. He was the most outstanding personality in the University.

At the time I am thinking of, in the late eighties, his researches into the cause of suppuration had earned for him a world-wide reputation, and it was therefore with great reverence, not unmingled with awe, an awe that lingered with us even in later years, that we approached him as the great master of the science and art which we had chosen to learn. His great powers of deft and graphic description made his lectures delightful to listen to. They were delivered in a slow, deliberate manner, but as he never used an unnecessary word and never repeated himself, it was only when one commenced to take them down that one realized how rapidly he covered the ground. He was greatly influenced by the German surgery of his time, and many were the German authorities that he quoted. His course of systematic surgery was much in advance of anything found in the standard textbooks of the day.

But it was in the wards and operating theatre that he was at his greatest. To watch the scrupulous care with which he went over a case, to listen to the logical analysis of the symptoms leading to a diagnosis, was a great education. His manner was as gentle and considerate to the poorest patient as to the richest. One of his great tenets was never to hurt a patient unnecessarily, and his gentle handling of a case was a fine object lesson. The operating theatre was a shrine at which we all worshipped. When a major operation was to be performed the benches were crowded—not that we always saw much, for he clung for long to the antiseptic spray, so that before the operation was far advanced the well of the theatre was shrouded in a mist. He believed in many student assistants, largely, I think, from an educative point of view. One assisted the anaesthetist, one held a basin and sponges, one manipulated the spray, and so on, and woe betide the assistant who lapsed in his duty. The short, sharp word of reproof was not likely to be forgotten. As a great pioneer and believer in the antiseptic system, he could not tolerate the slightest deviation from his ideals. His tenacity of purpose and fine results brought him great fame, and soon convinced the profession of the soundness of the system, for even in those days it could not be said that Lister's methods had gained universal acceptance. Operative technique has developed since then, but the great underlying principles are the same, and the work of pioneers like Ogston laid our modern methods on a sure foundation.

Nature had gifted him with a fine brain, but she had also endowed him with an imposing frame. The tall, commanding figure, the sparing sentences deliberately uttered, and an almost old-world courtesy combined to make up a personality not easily forgotten.

Professor T. WARDROP GRIFFITH, C.M.G., Emeritus Professor of Medicine, University of Leeds, sends this personal appreciation:

The death of Sir Alexander Ogston will cause an immense number of graduates of Aberdeen University to recall times of long ago. Many will remember him as the regius professor of surgery; others, like myself, will carry their minds back to a period prior to 1882, when he was appointed as Professor Pirrie's successor, and when his relationship with the students was only through his position as honorary surgeon to the Aberdeen Royal Infirmary. I was his dresser in 1880 and in 1881, but I can remember him long before this, because when I was a lad he operated upon my father for cataract in 1871. At that time he did a good deal of eye work, and I remember hearing my father quote Argyll Robertson, whom he had gone to Edinburgh to consult, as having said, "There is no need to go out of Aberdeen for an operation of this kind when you have a man like young Ogston." Yes, it was by the name of "young" Ogston that I first heard him referred to, and in some sense it seems not altogether absurd, because eleven years after this date I attended the lectures of his father on medical jurisprudence. Alexander Ogston retained his wonderful physique and youthful appearance till late in life. I well remember a visit he paid to Leeds some eighteen years ago; he had come to attend the dinner of the West Riding Aberdeen University Club, and we spent a day at the Leeds Infirmary, of which, and of its surgery, he had such a high opinion. I introduced him to a good many of my colleagues, but I had serious difficulty in making them understand that this was really *the* Ogston—the "genu valgum" man, as they termed it. They thought it must be his son! I had to emphasize that this was veritably *the* Ogston whom they had in their minds, the deviser of the ingenious operation for genu valgum, the ardent and early disciple of Lister, and the first man to demonstrate the invariable presence of micrococci in an acute abscess. I remember that I had a great treat for him during his visit. Many years before Mr. Jessop had operated on a young man for double genu valgum, and, as he sometimes did, he performed Ogston's operation on the one side and Macewen's on the other. A good many years afterwards the man died, and I managed to secure enough of the two legs to show the excellent result which was obtained on the two sides and between which there was nothing to choose from the point of success. The specimens, which are now in our museum, I kept unmounted for a good many years in the hope that some day I might have the pleasure of showing them to my dear old master, and not without a hope that they might act as a bait to attract him to Leeds. I well remember the avidity with which he took off his coat, turned his cuffs up, and "sat down to" the two specimens. He used to tell us that he regarded Macewen's operation as the better of the two. "Personally," he used to say, "I get as good results with the one as with the other, but I should certainly recommend Macewen's operation as preferable to my own." I remember hearing Mr. Jessop say that he had been greatly impressed by a statement to this effect which he had heard Ogston make at some big discussion on the subject; his comment was, "*There* spoke an honest man." Like many surgeons, he had a sort of mild, good-natured contempt for the art of medicine, well illustrated by the following incident, of which, to his great amusement, I reminded him some thirty years after its occurrence. Dr. A. W. Russell—and we talked about it the other day when we met—was his chief dresser, and they were going round together fixing up the operations for the next morning; his attention was called to one lad who was due for operation, but who had "some kind of a rash." When he saw the lad he remarked, "Chicken-pox, Russell," with that slight emphasis on the second word which any of his old students would certainly give expression to if they were recounting the incident, and he was passing on when Russell said, "What shall I give him, Sir?" After a slight pause Ogston quietly said, "Give him a stick of barley sugar."

Yes, Ogston was a great man, a glutton for work, painstaking, unsparing of himself, and very thoughtful.

He was an admirable teacher, and I think the part of his teaching that impressed me most was that which he gave us in the small out-patient department. The work was leisurely and, the number of patients being small, it was very thorough. He used to think out his ingenious orthopaedic operations, and tell us exactly what he was going to do, and there is no doubt that his results were excellent.

The death of Ogston closes a chapter in the history of the University and Infirmary of Aberdeen; it will at the same time cause a great many of his former students not only to call to mind an old teacher with feelings of admiration, respect, and affection, but it will remind them of each other and strengthen that bond of fellowship which should, and which does, exist between those who have been trained at the same school.

Dr. E. A. CHILL (Battle, Sussex) writes:

May I add my tribute of appreciation for the courtesy, humility, kindliness, and loyalty which animated this distinguished surgeon. In 1914 Sir Alexander Ogston was surgeon to H.M. the King in Scotland, and also President of the British Medical Association, and yet on the outbreak of war, and at the age of 69, he consented to leave his well-earned retirement in Aberdeen, and come to London to act as consulting operating surgeon at a small auxiliary military hospital at Southall, Middlesex. His presence soon made itself felt in various directions, and with an up-to-date operating theatre, and assisted by a capable staff of surgeons and nurses infected by his enthusiasm, the hospital was permitted by the military authorities to receive the seriously wounded direct from France or Flanders. While he was with us we received a visit from the late Editor of the *British Medical Journal*, and as a result an account of our work appeared from the pen of Sir Dawson Williams. As organizer and administrator of the hospital I feel it incumbent to place on record Sir Alexander Ogston's work among us. He was a great surgeon and a great gentleman. He was modest even to shyness, but had the gift of winning the esteem and affection of all those with whom he came in contact.

W. E. H. writes:

Not one of his many dressers, clerks, or house-surgeons who to-day mourn the passing of their chief can ever forget Ogston in his operating theatre or in his wards. We recall his methodical and unhurried progress from bed to bed, his intense concentration on the examination of the case, and his kindly consideration for the patient. In the dark ages before *x* rays were available it was a memorable object-lesson to see him conducting the investigation of some obscure hip-joint condition, as in clear and deliberate tones he dictated to his clerk the results of measurements, tests, and range of movements. It was in the days before *x* rays that he worked out the condition coxa vara. A pioneer in orthopaedic surgery, the rare quality of his operative work was the outcome of careful thought expended beforehand on the whole procedure of his operations, for his great manipulative skill went hand-in-hand with a sound and sagacious judgement.

We knew our chief was an Olympian, and so we were not surprised when to his operating theatre came surgeons from many lands. The writer remembers well how, early one Sunday morning, he was summoned to the chief's room, and there was introduced to a famous knight of surgery from Dublin. "Let me introduce you," said Ogston, "to the man who first tied the internal iliac artery. Nevertheless he has a gumboil. Bring me a bistoury." Do we not also recall his quaint, old-world phraseology in his lectures as professor of surgery, and his sly digs at the "armchair theorists"? "More ink than blood has been shed on this point," was how he summed up the alleged terrors of an abnormally distributed artery. In Alexander Ogston a great surgeon and a great man has passed to the other side.

[The photograph of Sir Alexander Ogston reproduced at page 325 is by R. M. Morgan, Ltd., Aberdeen.]

JOHN EDWIN EDDISON, M.D.,

Emeritus Professor of Medicine, University of Leeds; Consulting Physician, Leeds Infirmary.

WE have to record with great regret the death of Dr. J. E. Eddison, formerly of Leeds, which occurred on January 27th at Cuckfield, Sussex, where he had gone to live some few years ago. John Edwin Eddison, who belonged to a well-known Leeds family, his father being a member of an old-established firm of solicitors, was born in 1842. He graduated M.D. at Edinburgh, and often said that the selection of Edinburgh as his medical school was a very deliberate choice on the part of his father, who was of opinion that at that time the teaching was better there than could be found elsewhere. He supplemented his Edinburgh training by spending some time at St. Bartholomew's Hospital, and became a Member of the Royal College of Surgeons of England in the same year that he graduated at Edinburgh—namely, in 1864. After spending a year or two in Paris and Vienna he commenced practice in Leeds, and in 1871 a vacancy on the staff of the General Infirmary, caused by the resignation of the late Dr. Chadwick, led to his being appointed physician as junior colleague to Dr. Heaton and Dr. Clifford Allbutt. He served the Infirmary as full physician till 1892, when he became a member of the consulting staff. His work, however, was not confined to this, the greatest of the Leeds hospitals, for he was physician to the Public Dispensary, to the Women and Children's Hospital, and to the Leeds "House of Recovery," or Fever Hospital, where he was associated with the pioneer work of Allbutt. He also took a great interest in the founding of the Leeds Trained Nurses' Institution, which dates from 1875, and acted as its honorary consulting physician.

When Eddison began practice in Leeds great changes, some only of which were apparent to the multitude, were imminent. The old Leeds School of Medicine, instituted by the first William Hey in 1831, was run very much on the lines of a limited liability company, and had for many years been doing excellent work. When the Yorkshire College of Science was started (with, it is often said, three professors and one student) an arrangement was entered into by the school of medicine that the preliminary scientific subjects of medical education should be taught at the new institution. From this small beginning arose the great developments now in progress in connexion with the University of Leeds. The Yorkshire College of Science dropped its qualifying words, becoming simply the Yorkshire College, and instituted chairs of Latin and Greek, widening its outlook in many other respects. In 1884 the old medical school amalgamated with the Yorkshire College, which in this and in other ways attained to university status, and was admitted as the third college of the federal university known as the Victoria University, with its seat in Manchester. The subsequent developments are fresh in the minds of all. Though the old Victoria University was doing great work, the federal system was attended with some disadvantages, and a desire for greater freedom and independence resulted in the formation of the three universities of Manchester, Liverpool, and Leeds in 1903. Dr. Eddison was very closely associated with all these changes, and at the "coming of age" of the University in 1924 he was awarded the honorary degree of doctor of science. Early in his career he became associated with Dr. Allbutt in the joint lectureship in medicine, and he was the first professor of medicine in Leeds after the affiliation of the Yorkshire College with the Victoria University. Both in his work as a lecturer and as a clinician he always showed something original and arresting in his teaching. Frankly, it was not the kind of teaching which was adapted to the requirements of the average student; it was not didactic. He was possessed of a mind so critical, so alert, and so trained to the exposure of fallacies that to many he seemed to take much more pleasure in pointing out what was not the case than in trying to impress on his students the well-established facts upon which their future professional work would have to be based. The writer formed the opinion many years ago that this characteristic of his teaching sprang not only from his critical outlook

on things in general, but from a deliberate conviction that the work of a teacher in a subject like medicine ought to place the mere imparting of information on a plane altogether below that which deals with the stimulation of the minds of his students so that they may be guided to learn for themselves. If the average student, therefore, was somewhat discouraged by his teaching, many will have discovered by now that he taught them a great deal more than they felt at the time; those who acted as his resident officers, and were old enough to attain to some understanding of his outlook, learned a great deal by their association with him in the wards of the Infirmary, and will always cherish the recollection of a kind and considerate master.

Dr. Eddison was for many years a member of the British Medical Association, and served on the Central Council from 1910 to 1912. He was one of the original members of the Leeds and West Riding Medico-Chirurgical Society, founded in 1872, and was president in the session 1882–83; he never lost his interest in its work, but attended the meetings with great regularity until his final retirement from practice in 1907. There must be many who, with the writer of these lines, can recall his ready and fascinating oratory and his shrewd wisdom—at times only too successfully concealed by a whimsical and humorous presentation of his case. Outside his professional life he was a man of very wide interests. He was a great reader, and in this respect his tastes were catholic, and he was for many years a very strong supporter of the Leeds Literary and Philosophical Society. He was president four times, and when he was elected to the council in 1919 it was pointed out that this was the fiftieth successive occasion on which he had been elected to this position. As already mentioned, he retired from his professional work, which for many years had been strictly limited to that of a consulting physician, in 1907. He went to live at Cuckfield in Sussex a few years ago. The interment was in Adel Churchyard, close to where Dr. Eddison had lived for so many years; the service was conducted by the vicar of the parish and by his old friend, Dr. Draper, the Master of the Temple. Among those present at the funeral were representatives of the University of Leeds and the Infirmary, and of other societies with which he was associated, including the Medical Charitable Society for the West Riding of the County of York, for which he did such excellent work, and many of his professional brethren.

T. W. G.

C. G. DRUMMOND MORIER, L.R.C.P. AND S.I.

DR. C. G. DRUMMOND MORIER died on February 2nd. He was born in 1856, and received his medical education at the school of the Royal College of Surgeons in Ireland, Charing Cross Hospital Medical School, and Vienna. In 1880 he became L.M. Rotunda Hospital, Dublin, and L.R.C.P. and S.I. in 1883. He was at one time medical officer of the Nairne and Mount Barker districts, South Australia. He was for many years a member of the British Medical Association, and was the representative of the Adelaide and South Australian Branch on the Central Council from 1898 to 1914, when he was succeeded by the late Dr. W. T. Hayward; he was also an ex-chairman of the Dominions Committee of the Association. Dr. Morier was a Fellow of the Royal Society of Medicine and a member of the Society for the Study of Inebriety.

C. O. H. writes: Charles George Drummond Morier, who died on February 2nd, brought to the practice of medicine an exceptionally virile and effective personality. In mind, as in physique, he was every inch a man, and his readiness and ability to carry responsibilities, associated as this quality was with a particularly shrewd judgement and much kindness of heart, made him for many a help and stay in anxious and difficult hours. His social gifts secured for him many friendships, and to these he held in all loyalty and practical service. Those of us who shared with him many experiences and memories recall gratefully his good comradeship, and regret the loss of one who knew the rules of the game, and ever followed them with unfailing sincerity and courage and goodwill.

A memorial service was held at St. Mark's Church, Hamilton Terrace, N.W., on February 6th, at which Mr. H. M. Stratford, F.R.C.S.Ed., the honorary secretary of the Kensington Division, represented the Council of the Association, and the interment subsequently took place at Farnham Royal, Bucks.

PIERO GIACOSA, M.D.,

Professor of Pharmacology in the University of Turin.

FOR the following appreciation of the late Professor Giacosa of Turin we are indebted to Professor Arturo Castiglioni of Trieste.

The death of Piero Giacosa has come as a most painful loss, not only to the medical profession in Italy in which he occupied so distinguished a position, but to all who loved in him the scientist, the great teacher, and brilliant writer, and appreciated the gifts of his character and mind. Born at Parella, near Ivrea in Piedmont, in 1853, of a family distinguished for its learning, he was the younger brother of Giuseppe Giacosa, one of the best-known writers and authors of plays of the end of last century in Italy. Piero Giacosa devoted himself to the study of medicine at Turin, where he graduated in 1876. Even in his first medical research concerning the physiology of respiration at high altitudes, Giacosa displayed his powers as an acute observer. He continued his studies in Strasbourg at the physiological institute of Hoppe-Seyler, then at Berne and Erlangen, where he became the assistant to Leube. In 1881 he became assistant to Angelo Mosso at the physiological school of the University of Turin; he was next appointed lecturer in pharmacology and director of the laboratory of experimental pharmacology. In 1884 he was elected to the chair, which he occupied without interruption until 1928. He was the author of a treatise on materia medica, pharmacology, and toxicology, which became a standard work by reason of the vast knowledge it contained of chemistry, biology, and medicine; it is to Giacosa that we owe the beginnings of the important researches into the oxidation of aromatic hydrocarbons in the organism and into the transformation of nitrates. He was also the author of epoch-making investigations into the history of medicine. His work entitled *Magistri Salernitani nondum editi*, in which he brought together a large number of texts of the ancient Masters of the "Studium" of Salerno, cast a new light on the history of that medical school in the Middle Ages. He was in close friendship with the greatest men of science of his time; a mark of the esteem he enjoyed abroad was the degree of Doctor *honoris causa* conferred on him by the University of Cambridge. His vast and many-sided labours, his kindness of heart, and the excellence of his teaching will assure him the grateful and heartfelt remembrance of students beyond the confines of his own country.

THE LATE DR. F. DE HAVILLAND HALL.

SIR FRANCIS CHAMPNEYS, Bt., writes: May I add a few words to the obituary notice of Dr. de Havilland Hall which you have published? I have known him well for half a century, and was intimately associated with him for a good many years during the foundation and early history of St. Luke's Hostel for Clergy. He was one of the kindest and most charitable men that I ever knew. I do not suppose that anyone was more often consulted by members of his own profession for themselves or for their families, and he never failed them. I consider that this is one of the best rewards that a medical man can gain. In the work that he undertook he never spared himself, and he never put himself forward. In criticism of others he was an example of charity. I should think that he had no enemies, and that few men can have led so long a life without reproach.

Lieut.-Colonel C. SAMMAN, Master of the Society of Apothecaries of London, writes: I have read the obituary notice of Dr. de Havilland Hall in the *Journal* with great interest, and think your readers may like to know that in addition to his many other activities he was a prominent member of the Court of Assistants of this Society. His valued opinions and advice, so courteously expressed, were

always listened to with great respect by his fellow members of the court. I, as Master, Mr. Osborn, and Mr. Adams Frost, members of the court, and Dr. Haydon, secretary to the Court of Examiners, were present at the funeral at Twickenham.

We regret to announce the death, at the age of 63, of Dr. LEO FERDINANDO BIANCHI, F.R.C.P.Ed., F.R.C.S.Ed., which occurred at his home in Portobello, Edinburgh, on January 17th. Dr. Bianchi was born at Tunbridge Wells in March, 1865, and was educated at St. Augustine's College, Ramsgate, and then aboard the Thames Nautical Training College, H.M.S. *Worcester*, off Greenhithe, Kent. In 1883 he was appointed a midshipman in the Royal Naval Reserve and served in the Hooghly Bengal Pilot Service. He had the honour of being among the five candidates chosen to receive Her Majesty Queen Victoria's gold medal for the boy likely to make the finest sailor. The Indian climate told on his health, and he was retired from the pilot service with a pension. Some time after returning to Edinburgh he decided to engage in medical studies as a hobby, and he obtained the diplomas L.R.C.P., L.R.C.S.Ed., L.R.F.P.S.Glas. in 1904. In 1905 he became M.R.C.P.Ed., and received the D.P.H. R.C.P.S.Ed., and in 1908 he obtained the F.R.C.S.Ed. For a time he held an appointment as non-resident house-physician at the Royal Infirmary, Edinburgh; he subsequently started private practice in Joppa, and later in Portobello. In 1920 he obtained the Fellowship of the Royal College of Physicians, Edinburgh. He was a member of the British Medical Association from the date of his qualification in 1904, and from 1916 to 1919 was on the executive committee of the Edinburgh Division. Dr. Thomas I. Mills writes: Dr. Bianchi and I have been close friends both as seamen and as members of the medical profession for forty-seven years. He was a man of fine character and a natural leader of men.

Colonel JOHN ARNALLT JONES of Llandaff, Cardiff, who died last December, was born in June, 1852, and received his medical education at the London Hospital. He obtained the diplomas L.S.A. in 1884, L.R.C.P.Lond. in 1885, M.R.C.S.Eng. in 1887, and D.P.H. in 1904; he graduated M.D.Durh. in 1902. For many years he was medical officer of health for the Borough of Aberavon and Swansea (Port Talbot) Sanitary Authority. While at Aberavon he was instrumental in the formation of ambulance classes for the local railwaymen and other workers. He took great interest in the Volunteer movement, and became colonel of the 2nd V.B. Welch Regiment. During the last war Colonel Arnallt Jones served in the Dardanelles as A.D.M.S. to the 53rd Welsh Division, and in 1922 became honorary colonel R.A.M.C., Welsh Division, in succession to the late Sir John Williams. He was an honorary surgeon to the King. He was appointed J.P. for county Glamorgan, and a Justice in Lunacy. Colonel Arnallt Jones was a member and ex-chairman of the Swansea Division of the British Medical Association, and was secretary of the Section of Navy, Army, and Ambulance when the Association held its annual meeting in Swansea in 1903. He was an enthusiastic worker for the Priory for Wales of the Order of the Hospital of St. John of Jerusalem, and for his services the distinction of Knight of Grace of the Order was conferred upon him. He leaves a widow and one daughter.

Dr. BERTRAM ADDENBROOKE, whose death from acute pleurisy and pulmonary embolism occurred at his home at Kidderminster on January 22nd, had been in practice in that town for about thirty years, having joined his father, the late Dr. Edward Homfray Addenbrooke, there in 1898. Born in 1874, he received his medical education at Mason College, Birmingham, and Newcastle-on-Tyne, and in 1896 he obtained the diplomas M.R.C.S.Eng. and L.R.C.P.Lond., and graduated M.B., B.S.Durh., proceeding M.D. three years later, after having graduated B.Hy. He had held various resident posts in Birmingham previous to joining his father in practice at Kidderminster, where he speedily gained distinction among his fellow practitioners and became very popular. He held a number of public medical appointments, including that of honorary surgeon to the Kidderminster General Hospital; he was also medical officer of health for the Kidderminster Rural District. Dr. Addenbrooke was keenly interested in the Volunteer movement and its successor, the Territorial Army, in which he held a commission in the R.A.M.C. At the outbreak of war he volunteered for active service, and early in 1915 went to France with the 7th Battalion, Worcester Regiment. Six months later he was transferred to the 12th General Hospital at Rouen, where he was for a time surgical specialist. He was demobilized on account of ill health in 1917, and a few years ago he retired from the Territorial Army after having reached the rank of major and having received the Territorial Decoration. He was a Fellow of the Royal Institute of Public Health. A keen member of the British Medical Association, he served on the Council of the Worcester and Hereford Branch from 1910 to 1914 and from 1920 to 1925; in 1923 and 1924 he was successively vice-chairman and chairman of the Worcester Division. The death of Dr. Addenbrooke, after a very short illness, came as a painful shock to his many patients and friends, a very large number of whom, including nearly all the medical practitioners of the district, were present at his funeral on January 25th. He leaves a widow and one daughter.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on February 8th the following medical degrees were conferred:

M.B., B.CHIR.—F. H. Gillett.
B.CHIR.—D. B. Wilson.

Dr. T. S. Hele has been appointed a member of the M.B. Degree Committee, in place of Sir F. G. Hopkins, resigned.

UNIVERSITY OF LONDON.

THE report from the Committee on the Medical Education of Women Undergraduates has been generally approved by the Senate and the recommendations appended thereto have been adopted (an abstract of the report was published in our issue of February 2nd, p. 217).

The regulations for the M.S. Examination, Branch III (Ophthalmology) have been amended by the substitution for the third paragraph on p. 254 of the Red Book, 1928–29, and on p. 241 of the Blue Book, September, 1928, of the following:

Every candidate must forward together with his form of entry the following certificates: (i) A certificate of having spent a total period of at least two years in the study and practice of ophthalmology at a teaching school or schools approved by the University, of which one year at least must have been subsequent to obtaining the M.B. B.S. degrees in this University. (ii) A certificate that, in the course of this period of two years, he has held for at least six months an approved appointment in the ophthalmic department of a general hospital recognized by the University for the purpose, or at an ophthalmic hospital recognized by the University, without ceasing to attend, for the purposes of the study and practice of ophthalmology, a teaching school, or schools, approved by the University.

The regulations for the M.S. examination, Branch IV (Laryngology, Otology, and Rhinology), Red Book, 1928–29, p. 255, and Blue Book, September, 1928, p. 242, have been similarly amended.

An Academic Diploma in Clinical Pathology is to be instituted, the regulations for which will be obtainable in due course from the Academic Registrar.

Applications for grants from the Thomas Smythe Hughes Medical Research Fund for assisting original medical research must be received not earlier than May 1st and not later than June 15th, 1929. Particulars may be obtained from the Academic Registrar.

A University Studentship in Physiology of the value of £100 for one year will be awarded to a student qualified to undertake research in physiology, if a candidate of sufficient merit shall present himself. Applications must be received by the Principal Officer by May 31st. Full regulations of the award can be obtained on application.

Dr. H. Gainsborough has been recognized as a teacher of the University in Medicine at St. George's Hospital Medical School.

The following have been appointed staff examiners in the subjects of examinations for medical degrees for 1929:

Anatomy.—Professor T. H. Bryce, F.R.S., and Professor Mary F. L. Keene.
Bacteriology.—Major General D. Harvey, C.M.G.
Chemistry.—First Medical: F. D. Chattaway and Miss Sybil T. Widdows. Second Medical: F. D. Chattaway and Professor J. C. Drummond.
Forensic Medicine and Hygiene.—W. B. Anderton and A. S. MacNalty.
General Biology.—F. Drabble and Miss Philippa C. Esdaile.
Medicine.—Professor A. J. Hall, C. Wall (internal), C. E. Lakin (internal), and Professor H. MacLean. Associate Examiners: D. H. de Souza, Professor W. E. Hume, Professor A. W. M. Ellis, and J. A. Ryle.
Mental Diseases and Psychology.—E. D. Macnamara and C. W. B. James.
Neurology.—C. M. Hinds Howell and W. J. Adie.
Obstetric Medicine.—Professor M. H. Phillips and J. B. Banister. Associate Examiners: D. W. Roy and J. D. Barris.
Oto-Rhino-Laryngology.—Sir William Milligan and Herbert Tilley.
Pathology.—Professor E. H. Kettle and Professor J. M. Beattie. Associate Examiners: R. Donaldson and J. A. B. Hicks.

Pharmacology.—Professor W. E. Dixon, F.R.S., and V. J. Woolley.
Physics.—G. Stead and Professor J. A. Crowther.
Physiology.—Professor J. B. Leathes, F.R.S., and Professor J. Mellanby.
State Medicine.—R. A. Lyster and G. F. Buchan.
Surgery.—H. S. Souttar, Professor C. A. Pannett (internal), W. Girling Ball (internal), E. C. Hughes, and as fifth examiner if required, C. M. Page, D.S.O. Associate Examiners: G. T. Mulally, P. H. Mitchiner, E. K. Martin, W. H. Hey, and as fifth examiner if required, R. M. Vick.
Tropical Medicine.—J. B. Christopherson.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

Division of Tropical Medicine and Hygiene.

The following passed the examination at the termination of the eighty-fifth session (October, 1928, to February, 1929).

*S. Batchelor (Duncan medal), *T. C. Backhouse, *J. Bryant, *L. S. Chatterji, *R. S. F. Hennessey, *M. Howitson, *W. S. Nealor, *A. J. W. Wilkins, C. M. Africa, K. P. Anklesaria, E. A. Aslett, F. C. K. Austin, D. C. Bell, P. S. Bell, D. D. Bhargava, J. S. Brown, J. A. Carman, I. E. Chandler, A. D. Charters, N. Chilton, H. L. Chopra, J. C. Chukerbuti, A. H. Craig, M. Das, T. J. Davidson, G. E. Dodds, A. N. Duggal, A. L. Goddard, J. G. Green, H. E. Hargreaves, E. Haworth, W. Hunter, H. Joomye, N. Kamchorn, C. Libert, L. S. Liu, S. I. McMillen, A. Mearns, G. M. M. Menzies, G. W. Milledge, C. E. G. Nunns, N. M. Rane, S. L. Rikhye, J. S. Robinson, S. F. Russell, I. A. Senanayeke, E. H. Stahly, R. Stanford, E. M. Turner, F. B. Turner, O. R. Unger, A. E. S. Whatron, E. W. Whitcomb, C. D. Williams, D. B. Wilson.

* With distinction.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY meeting of the Royal College of Physicians of Edinburgh was held on February 5th, when the president, Dr. Robert A. Fleming, was in the chair.

Dr. James Davidson Stuart Cameron (Edinburgh) and Dr. Archibald Nathaniel Shirley Carmichael (Edinburgh) were introduced and took their seats as Fellows of the College. Dr. Ella Ferrier Pringle (Edinburgh) and Dr. John Miller Woodburn Morison (Edinburgh), were elected Fellows of the College.

Dr. William Sidney Thayer, Emeritus Professor of Medicine of the Johns Hopkins Medical School, Baltimore, U.S.A., was appointed Gibson Lecturer for the triennial period 1929–31.

The Services.

DEATHS IN THE SERVICES.

Lieut.-Colonel Thomas MacDermott, O.B.E., R.A.M.C.(ret.), died at Cheltenham on January 22nd, aged 63. He was born in Ireland on November 1st, 1865, and was educated in the Catholic University, Dublin, graduating as B.A., M.B., Ch.B., and B.A.O. in the Royal University of Ireland in 1889. Entering the R.A.M.C. as surgeon lieutenant on July 27th, 1892, he attained the rank of lieutenant-colonel on November 27th, 1914, retiring on November 1st, 1920. He served throughout the South African war of 1899–1902, when he took part in the operations in Natal in 1899–1900, including the action at Talana, the defence of Ladysmith, and the action at Laing's Nek; and in the Transvaal in 1900–2, including the actions at Belfast and Lydenbergh; and received the Queen's medal with four clasps and the King's medal with two clasps.

Major Henry Daniel James, R.A.M.C.(ret.), died at St. Leonards on January 22nd, aged 71. He was born at Multan on June 20th, 1857, the only son of the late Rev. H. D. James, M.A., chaplain, Bengal Presidency, and vicar of Hambledon, Oakham, and was educated at King's College, London, where he was resident Warneford scholar. He took the L.S.A. in 1883, the M.R.C.S. in 1884, and the L.R.C.P. Lond. in 1891. Entering the army as surgeon on January 31st, 1885, he became surgeon major after twelve years' service, and retired on January 31st, 1905. He served on the North-West Frontier of India, in the campaigns of 1897–98, taking part in the operations on the Samana Range (medal with two clasps), and through the Tirah campaign, at the actions of Chagru Kotal and Dargai, the capture of the Sampagha and Arhanga Passes, the reconnaissance of Sarau Sar, and the operations in the Bara Valley (clasp); and in the South African war in 1899–1901, in operations in the Transvaal, Orange River Colony, and Cape Colony (Queen's medal with four clasps). He also rejoined for service in the great war, and served in the South of Ireland for two years, 1915–17. Major James was a member of the British Medical Association, and represented the Hastings Division at the Annual Representative Meeting of the Association at Portsmouth in 1923.

Major Alfred Herbert Heslop, D.S.O., O.B.E., R.A.M.C. (ret.), died at the Clergy House, Exeter, on January 30th, aged 48. He was born on March 5th, 1880, the younger son of the late Rev. R. C. Heslop of Wakefield, and was educated at St. Thomas's Hospital and at Durham University, where he graduated M.B. and B.S. in 1903. Subsequently he took the F.R.C.S. in 1921. After filling the posts of house-surgeon at the Salop Infirmary, Shrewsbury, and the Durham County Hospital, and of clinical assistant at All Saints' Hospital for Genito-Urinary Diseases in Vauxhall Bridge Road, London, he entered the R.A.M.C. as lieutenant on July 30th, 1906, became major after twelve years' service, and retired on October 2nd, 1926. After retiring from the army he went into practice at Ryde, Isle of Wight, where he was surgeon to the Royal Isle of Wight County Hospital at Ryde, and consulting surgeon to the King Edward VII Convalescent Home for Officers at Osborne. He served in the recent great war, when he was four times mentioned in dispatches, in the *London Gazette* of January 1st, 1916, June 15th, 1916, December 24th, 1917, and May 25th, 1918, and received the D.S.O. in 1916 and the O.B.E. in 1919. He married Florence Madelaine, daughter of H. W. A. Walker, Esq., and leaves one son and one daughter.

Medical News.

A MEETING of the Royal Microscopical Society will be held at 20, Hanover Square, W.1, on February 20th, at 8 p.m. The effects of certain agencies on cell division *in vitro* will be discussed, Dr. R. G. Canti and Mr. F. G. Spear dealing with radium, Mr. S. F. Cox with *x* rays, and Mr. F. G. Spear with low temperature in this respect. Demonstrations will be given by Mr. S. F. Cox on the effect of a heavy dose of *x* rays on living cells as shown by the dark-ground method, and by Dr. Canti on cell division in the living tissues cultivated *in vitro*. Stained preparations will be exhibited to indicate the effects of radium, *x* rays, and low temperature on cell division.

UNDER the auspices of the National Council for Mental Hygiene Dr. Letitia Fairfield, C.B.E., will deliver a lecture on "Efficiency and deficiency" at the rooms of the Medical Society of London, 11, Chandos Street, W.1, on Wednesday, February 20th, at 5 p.m.

THE annual meeting of the Industrial Health Education Society will be held at 4 p.m. on Tuesday, February 19th, in the board room of the Society of Medical Officers of Health at 1, Upper Montague Street, Russell Square, London, with Sir Humphry Rolleston, the honorary president, in the chair. The speakers will be Lord Melchett, on behalf of employers, and Mr. Ben Tillett, president of the Trade Union Congress, on behalf of the employees. A brief account of the activities of the society was given in the *Journal* on January 26th (p. 183), when it was stated that a public appeal was being made for £5,000 to enable its work to be maintained and expanded to meet the demands made upon it.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that a lecture on "Pitfalls in dermatology" will be given by Dr. A. C. Roxburgh on Monday, February 18th, at 5 p.m., at the Medical Society, 11, Chandos Street, Cavendish Square. On the following day, at 10.30 a.m., at the National Heart Hospital, Dr. B. T. Parsons-Smith will give a clinical demonstration. At the Wellcome Museum of Medical Science, 33, Gordon Street, Dr. C. M. Wenyon will give a demonstration on the part played by animals in the spread of disease; on Wednesday, February 20th, at 4 p.m., and on Thursday, February 21st, at 2 p.m., Mr. Gill-Carey will give a clinical demonstration at the Central London Throat, Nose, and Ear Hospital. There are no fees for the above lectures and demonstrations. From February 25th to March 2nd there will be an all-day course in diseases of the chest at the Brompton Hospital, and from February 25th to March 9th a morning course in diseases of children will be given at the Hospital for Sick Children, Great Ormond Street. From March 11th to 23rd an all-day course, with limited entry, will be held at the Royal National Orthopaedic Hospital, and an afternoon course in ophthalmology at the Royal Eye Hospital. Copies of all syllabuses and details of the general course, consisting of attendance at clinical practice of some forty London general and special hospitals, may be obtained from the Fellowship of Medicine, 1, Wimpole Street, W.1.

THIS year, at Whitsuntide, a party of doctors and others will go on a tour of mediaeval towns and spas in Germany. Among the places to be visited are Hildesheim, Goslar, Bad Harzburg, Schierke, Bad Sachsa, Weimar, Eisenach, Kissingen, Nuremberg, Rotenburg, Wurzburg, Heidelberg, Frankfort, Bad Nauheim, Wiesbaden, Ems, Coblentz, and Cologne. The party is due to leave London on Tuesday, May 14th, and return on June 4th. The cost will be £45 12s., including all travelling expenses, meals, hotel charges, and gratuities. Wives or daughters of medical men joining the tour will be welcomed. Particulars may be had from Mr. Henry Baerlein (Bath Club, 34, Dover Street, London, W.1), who organized the enjoyable visits to Czechoslovakia and Jugoslavia in 1927 and 1928.

SPEAKING at the Chelsea Town Hall on February 11th Sir Samuel Hoare announced that Lord Melchett had purchased 1¾ acres of land for the erection of new buildings for the

Chelsea Health Society, of which Lady Melchett is president. It is intended to set up a centre in which accommodation will be found for the various health organizations of the borough. Subsequently it was explained that the gift was associated with Lady Melchett's scheme for a children's health centre, and that she intends to build a model infant's welfare centre, babies' nursing home, and day nursery. Offices will also be provided for the Invalid Children's Aid Association, and accommodation for the London County Council school treatment centre.

AT a dinner-party given in the parlour of Apothecaries' Hall, Blackfriars, on February 12th, the guests were received by the Master, Lieut.-Colonel C. T. Samman; the Senior Warden, Dr. H. J. Ilott; and Dr. T. Vincent Dickinson, Past-Master, in the absence of the Junior Warden, Sir George Buchanan. This occasion was taken to introduce formally to the Society of Apothecaries four medical men recently awarded the new diploma of Master of Midwifery after special examination in ante-natal care, child welfare, and midwifery. Among the other guests were Lieut.-General Sir Matthew Fell, Director-General A.M.S., Mr. Comyns Berkeley, and the Editor of the *British Medical Journal*.

THE Council of Epsom College will shortly elect a girl to a St. Anne's Home Scholarship of £52 a year. Candidates must be fully 7 years of age and not over 12 years of age on May 1st next, and must be orphan daughters of medical men who have been for not less than five years in independent practice in England or Wales. Application must be made by March 8th on a form to be obtained from the secretary, 49, Bedford Square, W.C.1.

THE Royal Society announces in our advertisement columns that applications for the Government grant for scientific investigation for 1929 must be received at the offices of the Royal Society by March 31st. Printed forms of application can be obtained from the Clerk to the Government Grant Committee, Royal Society, Burlington House, London, W.1.

As announced in our advertisement pages the governors and trustees of the Tancred Studentships propose to elect, shortly after Whitsuntide, one student in physic at Gonville and Caius College, Cambridge. The annual stipend is £100. Full particulars can be obtained on application to Mr. E. T. Gurdon, 28, Lincoln's Inn Fields, W.C., clerk to the governors and trustees.

THE fifth annual report of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation gives details of the twenty-one grants made during 1928. In the five years of its existence the Foundation has contributed seventy-three grants towards researches aiming at the solution of problems in medicine and surgery. Applications for grants to be made during the year 1929–30 should be sent before May 15th to Dr. J. C. Aub, Huntington Memorial Hospital, 695, Huntington Avenue, Boston, Massachusetts.

To the current issue of *Better Health*, a small magazine published monthly at 1d. by the Central Bureau for Health Education of the Society of Medical Officers of Health, Dr. H. B. Brackenbury contributes an article entitled "How to use your family doctor."

WE are informed that *The World's Health*, which has hitherto appeared monthly, will, during 1929, be published quarterly, commencing with the March issue.

IT is announced that Mr. Albert Levy, treasurer of the Royal Free Hospital, has given £50,000 to the fund for rebuilding the hospital's maternity department and for the promotion of research on maternal mortality. The fund was instituted eighteen months ago, when the Queen gave her support to the hospital's centenary appeal; Her Majesty has agreed that the new department should bear her name. Mr. Levy, in making his gift, has been actuated by a sense of the necessity for improving the midwifery service of the country, and of the special importance of training women students in this branch of medical work.

THE Nizam of Hyderabad has made a donation of £1,000 to the Ross Institute and Hospital for Tropical Diseases, Putney Heath.

THE Jubilee Congress of the German Balneological Society, founded in 1879, was held in Berlin from January 24th to the 29th, under the presidency of Professor Dietrich. The programme contained over 50 papers dealing with various aspects of balneology. The next congress will be held at Bad Elster in April, 1930.

UNDER the auspices of the *Revue Médicale Française* there will be a medical congress in Paris, from June 9th to the 14th, under the presidency of Professor Delbet. In addition to various lectures and practical demonstrations, excursions will be arranged to historic sites and therapeutic centres. Further information may be obtained from M. Léon Tixier, 18, Rue de Verneuil, Paris (7e).

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

SOUND-PROOF DOORS.

"INQUIRER" asks for suggestions as to means of deadening sounds between the waiting-room and the consulting-room. A thick curtain having proved insufficient, he has thought of adding an extra door specially constructed to prevent the transmission of sounds.

CONSTIPATION AFTER GASTRO-JEJUNOSTOMY.

"R. M. R." asks for suggestions for treating a man, aged 61, who had a gastro-jejunostomy performed more than seven years ago. Constipation is increasing, possibly owing to colonic stasis. Several kinds of paraffin have been tried—also argyrol with phenolphthalein, tablets of aloin and strychnine and belladonna—and a variety of other medicaments, but it is very difficult to overcome the constipation. The patient is very pale and thin, and extremely sensitive to cold.

MOONSHINE?

"C. I." writes: Can any medical man inform me if the statement one hears so often from people returning from the East (hot countries) that the moon has a harmful influence on residents there, more especially if it shines on their faces when they are in bed, is true or all "moonshine"?

TREATMENT OF RHEUMATIC HEART DISEASE.

DR. A. V. RUSSELL (Llanidloes) writes: Possibly "X. Y. Z." may find my experience helpful in treating the patient mentioned on February 2nd (p. 232). Among children in hospital and in private practice who suffered from rheumatism with cardiac complications I have had many with persistent slight pyrexia and some tonsillar sepsis. In one case, at least, vaccine treatment resulted in a complete cure, but, as a rule, the association of a vaccine with a peroxide gargle and a suitable throat paint was needed. Nearly all those patients who did not respond to this treatment recovered after tonsillectomy. I use Parke Davis antirheumatic vaccine in doses graduated according to the reaction observed. My favourite throat paint is the following:

℞	Zinci chloridi	gr. xx
	Glycerini	ʒss
	Aq.	ad ʒij

Sig. Apply night and morning after using a peroxide gargle.

For the gargle I use one teaspoonful of hydrogen peroxide in a wineglassful of tepid water.

INCOME TAX.

Division of Partnership Assessment.

"H. K. W." inquires as to the proper method to be applied where there has been a change in the personnel of the partnership.

*** Normally—including "H. K. W.'s" case—the change does not affect the gross amount of the assessment, which is fixed by reference to the amount of the profits of the year preceding. For instance, if D succeeds to C and the new firm becomes A B and D as from April, 1928, then that firm is assessed in the same gross amount as A B and C would have been assessed if the change had not taken place, and D has to account for tax on his fractional share of that amount less his own personal allowances.

It is, of course, true that for a time C will continue to draw cash from the partnership account and D's cash receipts will be less than his assessment. But that is the consequence of the principle that earned income is liable to assessment according to the period in which it is earned rather than that in which it is received. The same point would have arisen if D had bought a sole practice from C.

Break in Period of Appointment.

"X. Y. Z." held a hospital appointment during the period April 5th to 30th, 1926, and did not take up other work until the end of May, 1926. He "paid income tax for 1926-27," and was told that everything was in order, but is now being pressed to pay a small amount in respect of his earnings in April, 1926.

*** Income tax liability has always to be dealt with as for the Government's financial year—that is, for a year ending April 5th. When "X. Y. Z." dealt with his liability for the year 1926-27, therefore, the declaration which he presumably made would state his total income for the year ended April 5th, 1927. Apparently one of two things happened: either he forgot to include his April, 1926, earnings or the inspector of taxes forgot to take them into account. In either of those cases the additional small payment now requested would legally be due. It is, however, possible that he was assessed on the assumption that his post-April rate of remuneration applied throughout the year ending April 5th, 1927, in which case he was over-assessed. We suggest that, as "X. Y. Z." feels disposed to solve the question, he might reasonably ask the inspector to supply him with full details, showing how the tax which he paid for 1926-27 was calculated. An answer to that question should enable "X. Y. Z." to see just where he stands.

LETTERS, NOTES, ETC.

ERYTHEMA NODOSUM.

DR. W. CAMAC WILKINSON (London, W.1) writes: With reference to Dr. G. F. Walker's remarks on erythema nodosum (February 9th, p. 266), I think that as a matter of history I pointed out the association of this condition with tuberculosis in 1901, and year by year I accumulated evidence till I came to the conclusion that erythema nodosum was a tuberculous lesion and nothing else. I owe this discovery to the constant clinical use of tuberculin in all doubtful lesions in any part of the body.

TREATMENT OF PNEUMONIA.

DR. F. M. GARDNER-MEDWIN (St. Asaph) writes: Now that influenza is raging in Europe and America and the death rate from pneumonia is consequently increasing, may I once more call attention to the method of precipitating the crisis in pneumonia by means of intramuscular injections of sodium nucleinate, together with neutralization of the subacidosis due to febrile toxaemia? Details of the method were published in the *British Medical Journal*, 1924, ii, p. 40, and, with Willmore, in the *Lancet*, 1922, i, p. 116. A series of 40 consecutive cases was quoted of fulminating pneumonia so treated, in which the crisis was brought about in forty-eight hours or so, with consequent defervescence and recovery, mostly occurring during the pandemic 1918-19. Since then my series has been uninterrupted, so far as cases of lobar pneumonia in previously healthy persons, without crippling complications, is concerned. I do not claim that the treatment is always successful in the elderly and infirm, or in advanced nephritics, or in the terminal pneumonias of long-standing disease, but I do claim that it is practically always successful in cases of straight pneumonia occurring as the result of the sudden lowering of resistance by influenza or sudden chill, and that these cases can be saved the debilitating strain of the long wait for the normal crisis which so often kills them. Let me then formulate my credo. In influenza leucopenia diminishes resistance; saprophytic organisms become pathogenic; sodium nucleinate releases into the blood stream leucocytes latent in the bone marrow, increasing phagocytosis. I believe that in nearly all cases of uncomplicated pneumonia, if sufficient sodium bicarbonate and glucose is given to render the urine alkaline or neutral, and 2 c.cm. of the solution of sodium nucleinate put up by the Clinical Laboratories of Paris is injected intramuscularly into the thigh, that in forty-eight hours or so the temperature will fall to normal, convalescence will begin forthwith, and the patient will rapidly recover. Would that after six years' crying in the wilderness I could persuade all clinicians to give this method a fair trial while their patients are still viable and to give up other methods, some of which, if used in the very early stages, appear to give somewhat similar results, but in the later stages may be dangerous! Nuclein is harmless and uniform in its results; its action is independent of the duration of the disease. I am not alone in my optimism, for in the *Epitome* on April 2nd, 1927 (para. 375), there is a reference to a paper by L. E. Miller in the *South African Medical Record*, who, after using this method on 117 natives, 87 of whom had lobar pneumonia, had a death rate of only 8 per cent. Miller found this treatment of definite assistance in terminating lobar pneumonia quickly and successfully. I hope that practitioners who have used this treatment will give me the benefit of their opinion and their results.

INFLUENZA AND NOSOPHOBIA.

DR. W. A. MACDOWALL (Manchester) writes: It would be of interest to know whether mass suggestion has not a great deal to do with the spread of epidemic disease. It is a matter for debate whether the present epidemic of influenza is not as much psychological as it is bacteriological in its spread if not in its origin. The influence of the mind both in the nurture and in the destruction of dentina still remains a *terra incognita*, and there is little doubt that fear is an important factor in lowering the bodily resistance and in encouraging the attack upon the tissues. How great a part, then, does fear play in assisting the spread of epidemic disease, and how are its effects to be counteracted? I would suggest that a medical broadcast, either by wireless or by the press, advising the public that the present epidemic was of a mild and generally innocuous nature, and at the same time sounding a note of warning, would be of great service. The function of the medical profession in these scientific times is one of prevention as well as of cure, and much might be gained by the issue of a warning such as I have indicated.

TREATMENT OF INFLUENZA.

"M. M. E." writes: It may be profitable, in view of the present influenza epidemic, to draw the attention of readers to the excellent article by Mr. E. B. Turner in the *British Medical Journal* of July 16th, 1927. He recommends keeping the patient in bed and administering 20 grains of salicin (it would appear that sodium salicylate acts similarly) every hour for twelve hours, and then every two hours for the next twelve hours. This treatment, he says, nearly always puts an end to the attack, and also reduces the chance of infecting others. Reference may also be made to the advantage of giving one or two injections of 1 c.cm. of sodium nucleinate in the treatment of influenzal pneumonia. The effect of nucleinate is to double the leucocyte count in twenty-four hours, and thus, in many cases, to avert a fatal termination even when the condition might appear almost hopeless.

COINCIDENT SHINGLES AND VARICELLA.

DR. LEWIS W. REYNOLDS (High Wycombe) writes: In a man, aged 80, an attack of herpes began on December 6th, 1928, involving the distribution of the ascending and descending branches of the superficial cervical plexus of the left side. Two days later a small red papular eruption appeared on the chest and arms, soon becoming vesicular and spreading to other parts of the body. The temperature went up to 102.6° on December 10th, gradually coming down to normal on December 13th. The condition followed the ordinary course for varicella, and by December 24th the last scab came away. The original eruption on the scalp, however, took a very different course. The pain was not so severe as it often is in shingles, but it is still present and causes some distress. There is a numbed feeling of the scalp on that side, also the scabs have only just entirely disappeared, now two months from the commencement.

A POSSIBLE CAUSE OF DEATH IN DROWNING.

IN the October issue of the *West African Medical Journal* there is a posthumous communication by Dr. W. A. Young on the subject of a possible cause of death in strong swimmers. In this it is stated that in only a few of the numerous *post-mortem* examinations on adult native fishermen and capable swimmers, washed up on the shore at Accra, were the typical signs of drowning present—namely, water in the lungs and stomach. In most instances the lungs were aerated and the stomach contained no water, though it was occasionally distended. Dr. Young refers to the article by W. Russell on "Hypochlorhydria and air swallowing" in the *British Medical Journal* (1919, vol. ii, p. 769), and suggests that something similar to air swallowing may occur to a strong swimmer, causing sufficient distension of the stomach to lead to functional angina pectoris. As a result of considerable experience of surf bathing, Dr. Young was led to conclude that, after taking a deep breath and diving, there is a tendency for air to enter the stomach by an act of swallowing while the body is submerged, resulting at times in slight nausea and loss of confidence in swimming ability. It is added that this may explain the advice not to bathe on a full stomach, the reason being that little or no room is thus afforded for further distension of this organ by air.

DOCTORS' HANDWRITING.

"A COUNTRY DOCTOR" writes: Doctors should not too readily surrender their ancient privilege of illegible writing. I have before me a typewritten prescription from a physician on the full staff of a big teaching hospital, in which prescription there are six mistakes in Latin.

WE are informed that the office address of Messrs. Armour and Co., Ltd., is now Armour House, St. Martin's-le-Grand, E.C.1.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 46, 47, 48, 49, 52, 53, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 47.

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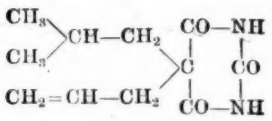

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